FLIGHT

The AIRCRAFT ENGINEER AND AIRSHIPS

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Founder and Editor: STANLEY SPOONER

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DIARY OF CURRENT AND FORTHCOMING EVENTS

Club Secretaries and others desirous of announcing the dates of important fixtures are invited to send particulars for inclusion in this list:—

1931

April 18. Air Rally, Aston Clinton, Bucks.
April 18. No. 55 Sqdn. R.A.F. Reunion Dinner, Park Lane Hotel.
April 20. "The Present Position in Aeronautics." Howard Lecture, by Dr. N. A. V. Piercy, before R. Soc. of Arts.
April 22. Air League Annual Dinner, at Dorchester House, Park Lane.
April 25. Sailplane Club's Dance, Suffolk Galleries.
April 27. Closing date of British Empire Trade Exhibition, Buenos Aires.
April 27. "The Present Position in Aeronautics." Howard Lecture, by Dr. N. A. V. Piercy, before R. Soc. of Arts.
April 30. "Aerodynamics of Sails." Lecture, by Dr. M. Curry, before R.Ae.S.
May 1-4. International Aviation Meeting, Pilsen, Czechoslovakia.
May 3. Flying Meeting. Southern Ae.C., Shoreham.
May 9. Flying Meeting, Bridgend, Glam.
May 14. "Metal-Clad Airship." Lecture, by C. Fritsche, before R.Ae.S.
May 15-31. Stockholm Aero Show.
May 16. Reading Ae.C. Meeting.
May 23. Start of Whitsun Continental Cruise, Heston.
May 25-26. Northamptonshire Ae.C. Flying Meeting at Sywell.
May 30. Heston-Newcastle Air Race, for "Newcastle Evening World" Trophy.
June 6. Brooklands Air Meeting.
June 8. International Rally, Bucharest.
June 20. Flying Display and Air Pageant, Bristol Airport.
June 26. R.A.F. Dinner Club Annual Dinner.
June 27. R.A.F. Display.
July 10-19. Circuit of Italy.
July 25. King's Cup Race.
Sept. 5. Haldon Flying Meeting.
Sept. 12. Schneider Trophy Contest.

EDITORIAL COMMENT

MR. C. W. A. SCOTT is receiving congratulations from all quarters on his fine feat in beating the record set up by Air Commodore Kingsford Smith between England and Australia. While we gladly join in the chorus of congratulations, we are also concerned with the lessons, if any, of this and of other notable flights. Records by themselves are rather futile things. We have no admiration for flying records which prove nothing and teach nothing except the hardihood of the individual pilot. A record number of continuous loops, for example, seems to us about as useful as dancing records which were so fashionable in America a few years ago, in which a couple would gyrate for so many days and nights without pausing. Flights across the Atlantic are, as a rule, not only useless, but actually reprehensible. But Hinkler's flight to Australia was useful in many ways, and so was Kingsford Smith's. Is the flight of Mr. Scott to be classed among those, or above those flights, or below them?

Mr. Scott's Flight to Australia

In so much as Scott has lowered the record by a few hours, the flight seems to us of little importance, except as a personal feat of skill and endurance and as a further reliability test of the various units which go to make up the machine and engine as a whole. But there is certainly something very impressive in the number of pilots who now get through from England to Australia. Most of these flights have been made on light aeroplanes, and each success adds something to the reputation of the light aeroplane as a practical means of transport. Each fast flight also has its value, not so much on its own merits, but as adding to the sum total of fast flights. We have now had the flight by Hinkler, that by Kingsford Smith and party in a Fokker, that by Miss Johnson, that by Matthews, that by Kingsford Smith in an Avian, and now this flight by Scott in a Gipsy Moth. The number is mounting up, and it is the number of fast flights rather than the actual record which is doing good service to the cause of air transport. From this point of view, this flight of Scott would have been just as useful if he had just failed to

beat the standing record. Air transport gains little from an isolated "stunt" flight. When the extraordinary becomes the usual, then we may feel that progress has been made. It brings nearer the time when what was once a record time will be the regular programme of an organised air mail.

We commented last week on the fact that Imperial Airways is running two experimental mail services to Australia in the time which was once the record set up by Hinkler for the trip. What is more, it is doing this with standard and by no means new types of air liner. That shows what can be done by organisation. The pioneer draws attention to a route, and by setting up a record he shows that the route can be covered in a short time. But by working single-handed he creates all sorts of difficulties for himself which are found not to exist when organised services are put on to the same route. When a route is organised there is no need for a pilot to exhibit great feats of endurance by flying an excessive number of hours day after day. There is no need for the aeroplane to be heavily overloaded with fuel and spares. There is no need for the engine to be strained till one wonders how it continues to carry on. What was difficult to the solo pilot, and incidentally what gained him his credit, becomes simple when routine and organisation are introduced.

But it is well that the record should be broken every now and again. The new record sets a standard which the coming special mail services should aim at breaking on every flight. If an Avian or a Moth driven by one pilot without relief can get to Australia in about nine days, the special mail aeroplane, with all the advantages of organisation behind it, should be able to do much better. The type of machine will be very much faster and more powerful, the actual aeroplane will be changed at appropriate places, so that the engine will not be over-strained, and the pilot will likewise be relieved as often as is desirable. Smart manhandling in transferring the mail from one machine to another will be called for, and doubtless will be provided. Substitute organisation for record-breaking "stunts," and the unusual will promptly become the ordinary. That is what we want to see happen.

❖ ❖ ❖

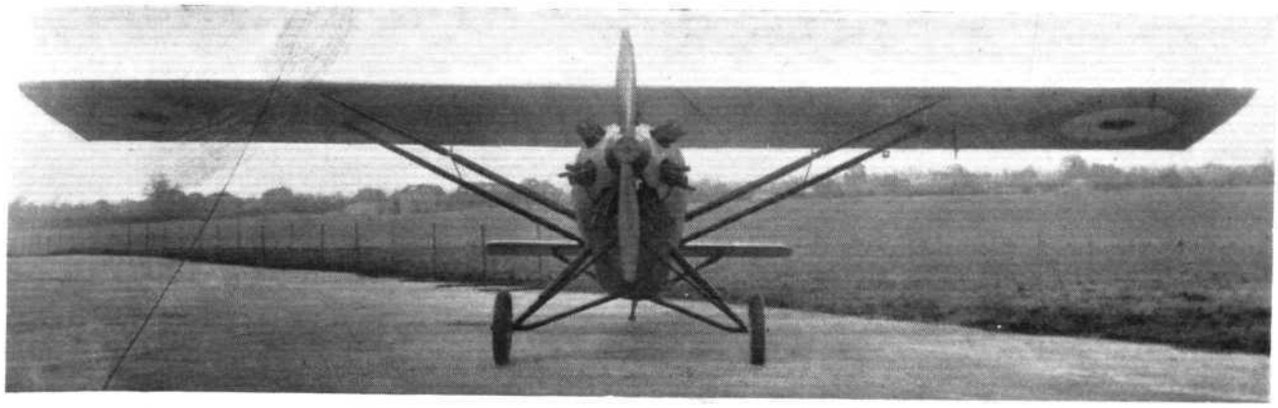
Iraq's Flying Corps

We wish all good luck to Lieutenant Jawad of the Iraq Flying Corps and his companions on their flight from Hatfield to Baghdad. What is more, we wish a happy future to the Flying Corps, which is inaugurated by this flight. It is an offspring of the Royal Air Force, and we feel sure that it will do credit to its parent. It is making a start with British aeroplanes, and we hope that in the future it will become a regular customer of our aircraft manufacturers. The officers who form the initial nucleus of the corps were carefully selected, and they have been very carefully trained by the Royal Air Force in its own methods and spirit. We have had the pleasure of meeting at least one of these Iraqi officers during his training with a Royal Air Force Squadron, and can bear witness that his English was fluent and his manners what one expects from an Arab gentleman, than whom it is said that there is no more courteous gentleman in the world. We also heard favourable accounts of his competence as a pilot and we feel sure that had he not been competent he would not have remained long with the crack squadron to which he was attached.

A very great future, we believe, lies before the Iraq Flying Corps, which comes into existence with the flight of this unit to its native land from the land which has been its nursery. The policy of Great Britain towards its mandatory has been to train it so that it can assume complete independence and join the League of Nations so soon as it has reached a stage of development which fits it for those responsibilities. The mandate in Iraq brings us in no profit; on the contrary, it costs us money. It will, therefore, be a welcome economy to us when we are able to make and end of the mandate. By putting the Royal Air Force in supreme charge of the defence of Iraq we have very substantially reduced the cost of exercising the mandate. It is sometimes overlooked that even in Iraq an Air Force cannot act entirely alone. It needs the assistance of ground forces. These are partly provided by armoured car units, which, very properly, belong to the Air Ministry and not to the War Office, and partly by the Iraq regular army and irregular levies. The essence of success in maintaining internal and external order is due to co-operation between the air arm and the ground arm.

Iraq is a country in which internal peace is best secured by using the air arm to a much greater extent than the ground arm. The situation might be altered in the case of an invasion by a foreign power organised on modern lines; but this, we hope, is a remote contingency. For restraining recalcitrant tribesmen, which is what might be called the every day duty of the responsible force, the aeroplane has been proved the most efficient, the most merciful, and the cheapest weapon. When ground troops are needed, they can often be moved to the scene of operations in troop-carrying aircraft.

It follows that when we hand over the responsibility for the defence of Iraq to the Government of King Feisul and his successors, that Government must have at its disposal an air arm which is sufficient for its purpose. A ground force will still be necessary, as hitherto, and in fact, changing conditions may even necessitate a stronger proportion of ground troops than is needed now. But we imagine that the air will always be the first line and will always need to assume the responsibility for the whole plan of defence. At present, we understand, the officers who have been taught to fly are officers of the Iraq Army, for they bear the military rank of lieutenant. Doubtless, before long, a separate Air Force will be instituted on the British model, and will be made the premier service. This flight of five "Moths" which started off for Baghdad last week is the first beginnings of that force, and therefore its flight is a momentous occasion. We repeat that we wish the officers and the force the very best of good fortune.



THE PARNALL PARASOL MONOPLANE

This "Flying Laboratory" has been designed for making full-scale tests of wings. The parasol wing is so attached to the fuselage that it is free to move slightly, and a dynamometer is incorporated by means of which the forces on the wing can be ascertained.

IN spite of such modern aids to research as compressed-air wind tunnels, and a knowledge of modern aerodynamic vortex theory, there are still problems to be solved which require accurate full-scale test results. "Scale effect," appears capable of determination in high-density wind tunnels such as have been used in the United States for several years and are now being installed in this country, but there is little doubt that many features of a wing, such as its behaviour at the stall, whether or not it has a tendency to "flick" into a spin, and so forth, are better investigated in actual full-scale flight. It may be recollected by some of our readers that several years ago the American National Advisory Committee for Aeronautics made an attempt to test wings by towing large-scale models in an inverted position, some distance below an aeroplane. Fairly good results were, we believe, obtained in this way, but the system does not appear to have come into general use, and so presumably there were "snags" in it. Recently, George Parnall & Company, of Yate, Gloucestershire, built for the British Air Ministry, two parasol monoplanes in which the wing mounting was so designed that the wing could be made free to move slightly in relation to the fuselage, the movement being restricted to small limits and a dynamometer incorporated in the wing-supporting system so that the forces on the wing could be measured at any angle of incidence. The Air Ministry has now very kindly agreed to a brief description of the Parnall Parasol Monoplane being published, and moreover, the Parnall Company is at liberty to sell machines of this type to anyone at home or abroad who may desire to operate such a flying laboratory.

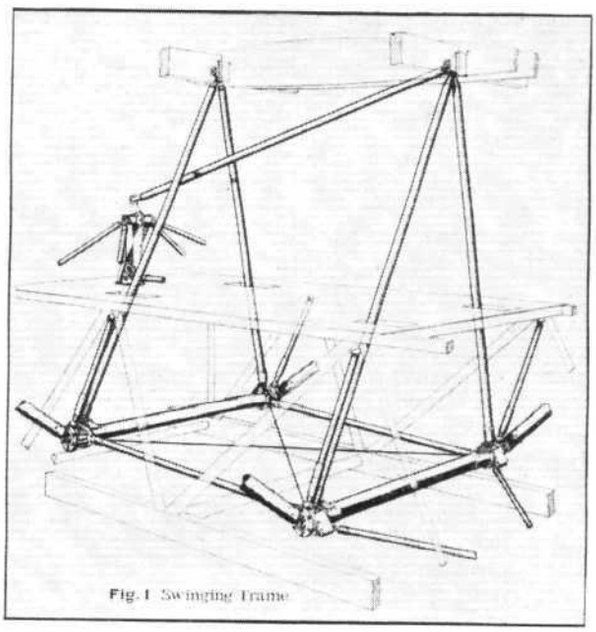


Fig. 1. Swinging frame.

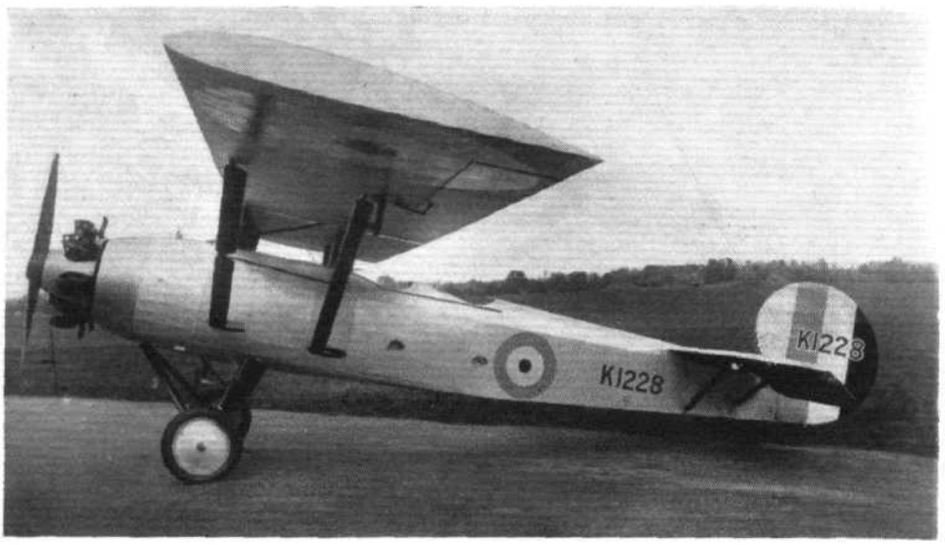
In our issue of April 3 we referred briefly to the Parnall Parasol Monoplane used for research into the aerodynamic forces on the wings. This machine is of composite construction, wood entering largely into the scheme, but high-tensile steel tubing being used for the swinging cradle on which the wing is supported and for the outboard wing-bracing struts.

In aerodynamic design, the Parnall Parasol Monoplane is notable for its clean lines, these being essential in a machine of this type, in which interference with the free flow over the wing must be kept down to a minimum. The fuselage, of normal wood girder type as regards its main structure, has been carefully streamlined by fairings, these fairings being easily detachable in order to facilitate inspection of the interior and adjustment of the wing-supporting structure.

It will be noted that the parasol wing is supported on its

THE PARNALL PARASOL MONOPLANE: The wing is raised well clear of the fuselage to avoid interference. *(Crown Copyright, R.A.F. Official Photographs.)*

centre line by two inverted Vees of steel tube, hinged to the top longerons of the fuselage, and outboard by parallel struts attached by pivot joints to the lower longerons via adjustable members. The supporting structure forms, in fact, a deformable parallellogram, the amount of deformation permitted being limited by yet another member which is linked with the dynamometer. This member slopes downward and forward from the rear spar to a crank under the fuselage deck. This crank is, in turn, connected to the dynamometer by a horizontal fore-and-aft tube. The degree of free movement permitted to the wing is provided in this link between the crank and the dynamometer. The general scheme of the cradle suspension of the wing is indicated in the perspective diagrammatic sketch, Fig. 1.



Side View of the Parnall Parasol Monoplane. The wing bracing struts are in the form of a deformable parallelogram. (*Crown Copyright, R.A.F. Official Photograph.*)

The reading obtained on the dynamometer from one setting of the wing determines the magnitude of the air force on the wing, but not its direction. To obtain this, and from it the components of lift and drag, a second reading is necessary. This is obtained by altering the points of attachment of the wing bracing struts on the fuselage. The way in which this is done is illustrated diagrammatically in Figs. 1, 2, and 3. Although two positions only are necessary, three positions have actually been provided in order to afford a check reading.

Certain wings, and in particular wings fitted with slots or other artificial aids to high lift, require the forces to be measured up to quite high angles of incidence. To enable this to be done an alternative series of wing attachment positions has been provided. These are shown diagrammatically in Figs. 4 and 5. All these changes in the positions of the strut attachments can be easily and quickly carried out with the form of structure used in the Parnall Parasol Monoplane.

The mechanism of the dynamometer is illustrated in the part-sectioned perspective view, Fig. 6. This sketch is self-explanatory, but attention should, perhaps, be drawn to the method adopted for limiting the movement of the wing. The lower end of the dynamometer has two rollers, one on each side, constrained by quadrant-shape cams. These cams can be rotated through approximately 90 degrees by a lever in the pilot's cockpit. The width of the cams varies along the length, one end fitting the roller, while the other end has a maximum clearance of 6 millimetres. This, therefore, represents the amount of "play" of the wing, and is sufficient to get a reading, while at the same time failure of any part of the dynamometer mechanism will not affect the safety of the machine in any way.

The control of the dynamometer is in the front cockpit, which is occupied by the observer, In the pilot's cockpit there is, in addition to the usual equipment, a lever which actuates a hydraulic brake on the airscrew. By means of this brake the engine can be stopped and the dynamometer readings taken while the machine is in gliding flight, *i.e.*, without the complications resulting from having a portion of the wing in the slipstream. An R.A.E. Gas Starter, Mark II, is fitted by means of which the engine can be started again when the glide has been completed.

The engine fitted in the Parnall Parasol Monoplane is an

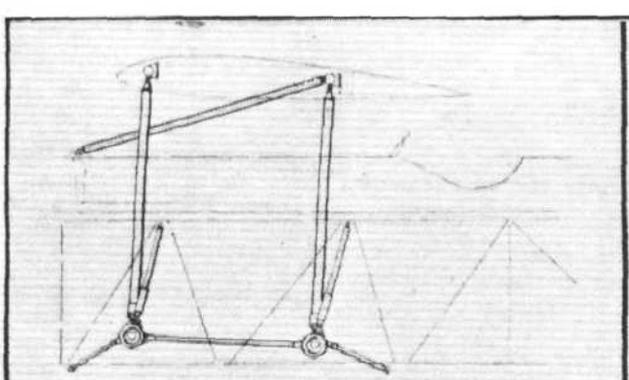


Fig. 2 Unslotted Wings - Position One.

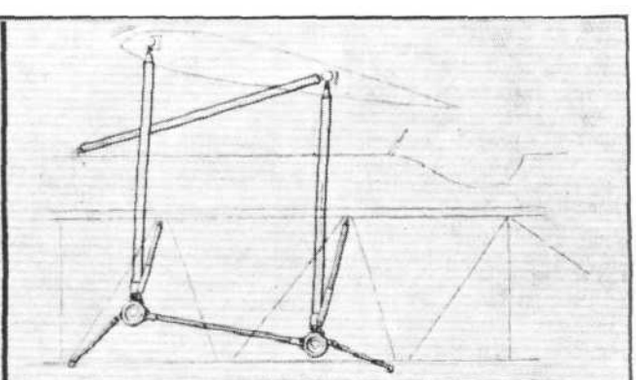


Fig. 4 Slotted Wings - Position One.

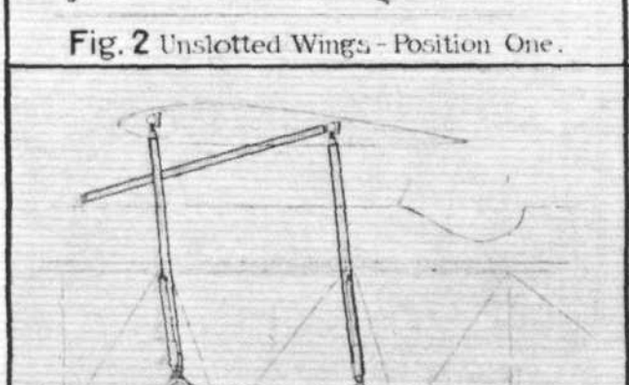


Fig. 3 Unslotted Wings - Position Two.

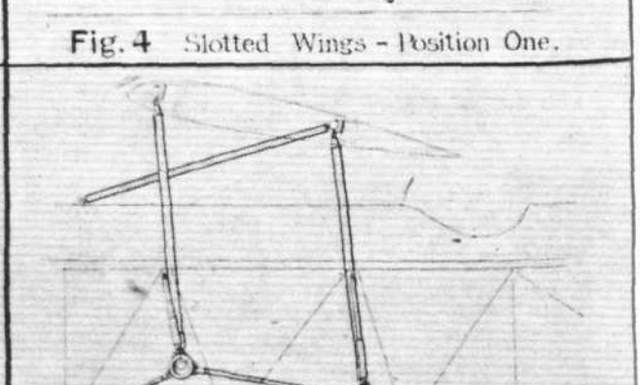


Fig. 5 Slotted Wings - Position Two.

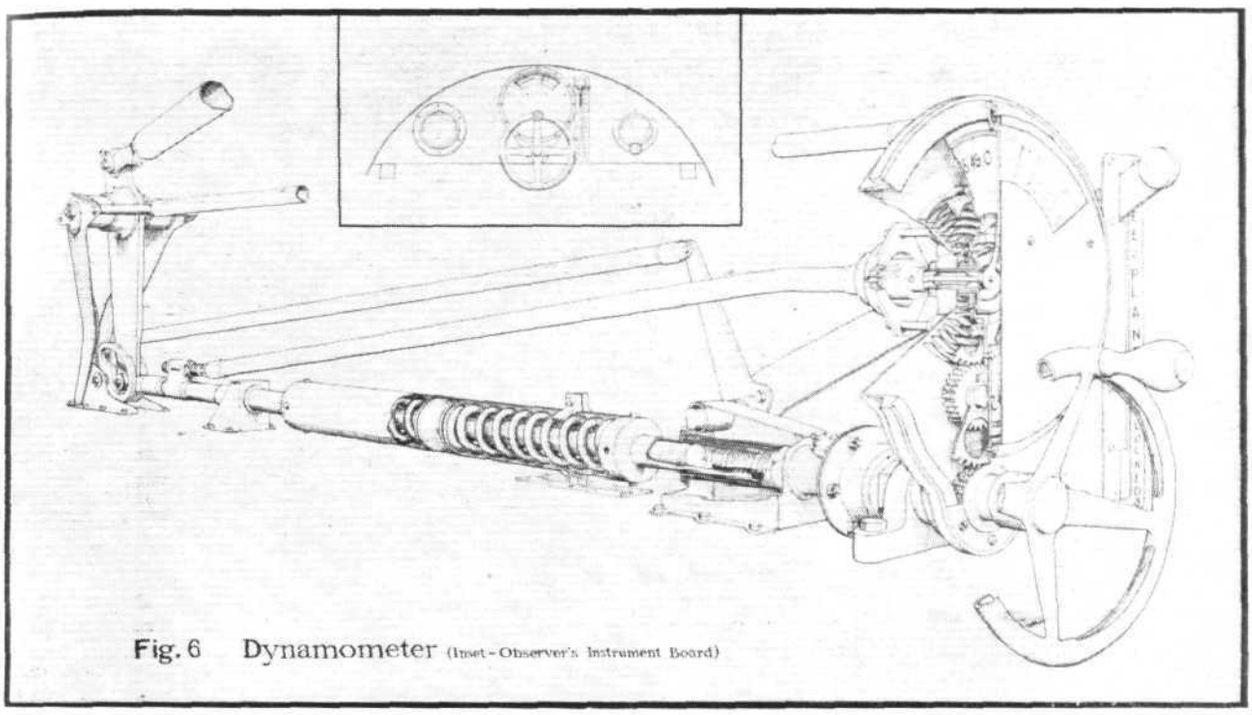


Fig. 6 Dynamometer (Inset - Observer's Instrument Board)

Armstrong-Siddeley "Lynx" Mark IV, which is supercharged to an altitude of 4,400 metres (14,500 ft.). Normally the dynamometer readings are taken at 2,400 metres (7,875 ft.) for which altitude the airscrew has been designed.

The main dimensions of the Parnall Parasol Monoplane are as follows: Length o.a., 30 ft. 4 in. (9·25 m.); wing span, 42 ft. (12·80 m.); wing area, 294 sq. ft. (27·33 sq. m.). The weight of the machine empty is 2,220 lb. (1,010 kg.) and the total loaded weight 2,870 lb. (1,304 kg.). At the operational height of 8,000 ft. the maximum speed is 119 m.p.h. (191 km/h), and the stalling speed, 56·5 m.p.h. (91 km/h). The rate of climb is 750 ft./min. (3·82 metres per second). The climb to 8,000 ft. (2,400 metres) takes 12·4 minutes. The absolute ceiling is 29,000 ft. (8,900 metres).

These figures refer to the machine as fitted with the wing tested by the Air Ministry. When a different wing is used, the figures will, of course, be influenced by the characteristics of that particular wing.

Anyone seriously interested in the Parnall Parasol Monoplane may obtain further particulars direct from the makers, George Parnall & Company, Yate Aerodrome, Gloucestershire, England.

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CORRESPONDENCE

[The Editor does not hold himself responsible for opinions expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters intended for insertion in these columns.]

IRISH FREE STATE CIVIL AVIATION GRANT

[2377] I would like to correct a slight error which appeared in FLIGHT for March 27, relative to a token grant in aid of civil aviation in the Irish Free State, it may interest many here to know that this £10 grant has appeared under the Dept. of Defence Vote for the years 1930–1931 and 1931–1932, but no vote has ever been given through the Dept. of Industry and Commerce as yet, and which is the proper department for such items, seeing that this office intends following strictly the lines of the Air Ministry. One naturally asks what has the Minister of Defence got to do with Civil Aviation here, the answer to my mind though funny to some is *a lemon*. You see, we Irish like to do things in Gaelic ways and methods, like the countryman who got his home electrically lit and heated, and on returning one evening to find the wireman finished and gone, rang up the Power House at Ardnacrusha to have the current shut off till he lit a candle to inspect how his job was "done." I heard lately also that Cullinston Aerodrome Co., Dublin, was to be turned into a lodging house next year.

Dublin,
March 31, 1931.

OBSERVER.

OUR AIRSHIP POLICY

[2378] Whether or not Britain continues to build airships, in view of the terrible disaster to R.101 and the subsequent report thereon, will doubtless be fully discussed by Parliament at a (to them) more suitable time than this present one of trade depression, etc.

But no amount of discussion will ever hide the important factors governing the question of "to be, or not to be" . . . and briefly, they are as follows:—

1. In a world where the power of any nation is the strength or weakness of its Air Force and aerial defences, Great Britain ranks FIFTH.

2. Our geographical position is such that it renders our country easily open to surprise aerial and naval attacks by enemy powers: we must, because of the said position of Great Britain, head the balance of world air-power; instead of ranking fifth, we owe it to ourselves and the millions who, during the Great War, made the Great Sacrifice on land, at sea and, above all, in the air, to see that we head the world's air power.

3. Other countries will not be readily deterred by the disaster to refrain from building even greater airships. America is already in the process of doing so. We MUST GO ON. Forty-eight lives may have been lost in R.101, but during the first few months of this year, R.A.F. fatal accidents approached over half this number (so the Press gives us to understand) . . . yet these fatalities . . . though each to be deplored as much as the forty-eight of R.101, do not cause the Government to refrain from building further Service machines or training more pilots.

The road to success as a world power must ever lie over its previous failures and regrettable accidents; lives must ever be sacrificed for one's country; if we stop building airships now . . . the lessons of R.101 will have been in vain.

4. Above all, we need airships to guard our trade routes . . . airships to carry troops in time of war . . . airships to carry aeroplanes, and to act as a base for them in land or naval operations. Airships should be our transport waggons of the air . . . as well taking a larger part in aerial defence at home and abroad.

MARY KNIGHTLEY.

Golders Green,
London, N.W.11.
April 7, 1931.

ENGLAND—AUSTRALIA IN 9½ DAYS

Flying a De Havilland "Gipsy Moth"—by night as well as day—Mr. C. W. A. Scott has succeeded in beating Air Commodore Kingsford Smith's flight from England to Australia by about 19 hours

Mr. C. W. A. Scott, who flew to Australia in 9½ days, has served in the R.A.F., and as pilot with Q.A.N.T.A.S., in Australia. (FLIGHT *Photo.*)

IT was in 1928 that Bert Hinkler accomplished his remarkable solo flight from England to Australia in 15½ days, and since then several attempts were made to beat it. Last year, in May, Miss Amy Johnson very nearly succeeded in doing so, but unfortunate mishaps, towards the end of the flight, prevented her from making a better time than 19 days.

In October last, however, Air Commodore Kingsford Smith set out from Heston, in his Avian Sports, to try and improve on Hinkler's time, and, at last, beat it handsomely—his time being 9 days 21 hr.

And now another splendid effort, beating Kingsford Smith's time for the journey, has to be recorded in Mr. C. W. A. Scott's recent flight from Lympne to Port Darwin in 9 days 4 hr. 11 min.

We have already recorded the early stages of Scott's flight, but under the circumstances, perhaps, we may repeat these here and so give the full story of the flight from start to finish, together with the accompanying log.

Day	Scott	Kingsford Smith	Amy Johnson
1	Belgrade	Rome	Vienna.
2	Aleppo	Athens	Constantinople.
3	Baghdad	Aleppo	Aleppo.
4	Bushire-Jask-Baluchistan	Bushire	Baghdad.
5	Karachi-Jodhpur ..	Karachi	Bander Abbas.
6	Gaya-Calcutta ..	Allahabad	Karachi.
7	Rangoon-Victoria Point	Rangoon	Jhansi.
8	Singapore-Palembang	Singapore	Calcutta.
9	Bima	Sourabaya	Rangoon.*
10	Port Darwin	Atamboea	—
11	—	Port Darwin	—

* Miss Johnson was held up two days, and then flew on the 12th to 20th days as follows: Bangkok, Singora, Singapore, Tjomal, Sourabaya, Atamboea, Port Darwin.

Scott, it will be remembered, left Lympne at 4.55 a.m. in his "Gipsy Moth," and reached Belgrade in one hop (1,100 miles) by nightfall. Leaving Belgrade before dawn next morning, and again flying non-stop, through very mixed weather, tried to make Aleppo, but missed it by about 30 miles, landing in a field that night and proceeding to Aleppo aerodrome next morning. After refuelling, Scott made a comparatively short flight to Baghdad, where machine and engine were overhauled and pilot rested.

In the very early hours of the fourth day, Scott started for Karachi, and making halts at Bushire and Jask, just failed to reach Karachi, landing in the dark near Baluchistan. Proceeding next day, he passed over Karachi and landed at Jodhpur at nightfall, continuing from here before dawn the following morning en route for Calcutta. A faulty cowling necessitated a forced landing at Gaya, but Calcutta was reached that night.

The seventh day had hardly commenced before Scott was once more on his way, and refuelling at Rangoon, arrived at Victoria Point just as darkness fell. Scott was now well ahead of Kingsford Smith, who had reached Rangoon on the seventh day, so pushing ahead, Scott left Victoria Point at daybreak on April 8, and making a short halt at Singapore, landed at Palembang.

He was away again before dawn next morning, and flew non-stop to Bima, where he landed after dark. The last stage of the flight from Bima to Port Darwin, over the Timor Sea was, he stated, the worst of all, for he had barely sufficient fuel, and on one occasion thought he would have to make a forced landing. However, he arrived safely on Australian soil at 5.40 p.m. (local time), having covered the 10,500 miles in 9 days, 4 hr. 11 min.

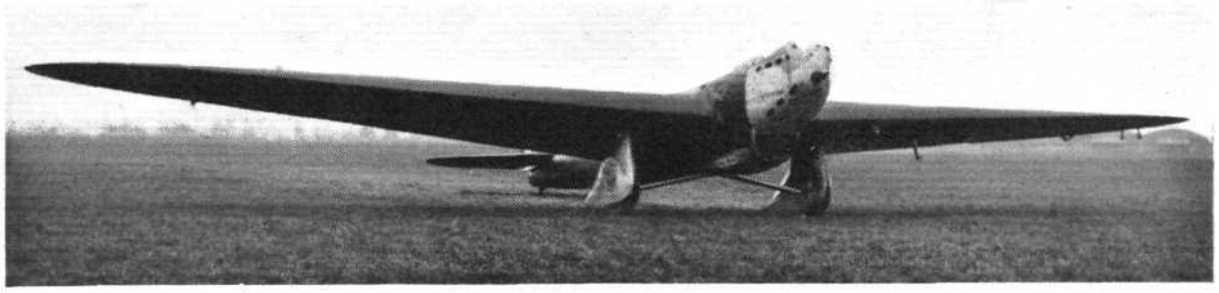
As might be expected, Scott was accorded an enthusiastic reception at Darwin, and has received many congratulatory messages, including the following from His Majesty, which had been forwarded to him by Sir Isaac Isaacs, the Governor-General of the Commonwealth :—

"Please convey to Mr. Scott my hearty congratulations on his fine achievement."

Lord Amulree, Secretary of State for Air, has sent the following message to Mr. Scott :—"On behalf of Air Council I send hearty congratulations on your fine flight from England to Australia."

Mr. MacDonald also sent congratulations to Mr. Scott.

Mr. Scott's De Havilland "Moth," with "Gipsy II" engine, which made its first trials early in March. It had special fuel tanks, having a capacity of 101 gals. (FLIGHT *Photo.*)



RECORDS COME AND RECORDS GO

The long-distance record over a closed circuit, but recently established by Bossoutrot and Rossi, has once again changed hands, the French pilots Paillard and Mermoz having bettered the previous record by 200 miles

A NEW long distance record for a continuous flight over a closed circuit was again established last week by the French pilots Antoine Paillard and Jean Mermoz.

Flying a new Bernard 80 G.R., a low wing monoplane known as the "Tango," equipped with a 650 h.p. water-cooled Hispano-Suiza motor, the airmen took off from the La Senia (Oran) aerodrome, French North Africa, at 6.35 o'clock Monday evening, March 30 last. They flew over a closed course, encircling around Oran for 59 hours 16 minutes at an average speed of 153 kilometres (95 miles) per hour and landed again at Oran at 5.44 o'clock Thursday morning, having covered, subject to verification, 9,145 kms. (5,682·7 miles). The existing record, which was established only on March 1—3 last, by Bossoutrot and Rossi in their Blériot 110 plane, comprised 8,822 kms. (5,482 miles) which they flew in 75 hours 22 minutes and was described in the March 13 number of FLIGHT. Paillard and Mermoz thus covered 323 kms. (200 miles) more than the previous record holders and in 16 hours 16 minutes less time.

The Bernard plane carried 7,180 litres (1,585 gallons approx.) of petrol and had on landing a sufficient quantity of fuel left to continue several hours longer in the air but the water in their radiator had evaporated to an amount that obliged Paillard and Mermoz to land sooner than they otherwise desired.

Both pilots are well known in French aeronautical circles. Jean Mermoz is the chief pilot of the Aeropostale Company, which operates the air line system from Toulouse, France, to Dakar, French West Africa, then by fast steamers across the South Atlantic to Natal, Brazil, connecting there with lines to Buenos Aires and throughout South America. He is the only airman that has as yet made the crossing of some 3,000 kms. (1,864 miles) over the South Atlantic Ocean, from Dakar to Natal, in a commercial seaplane. By making this flight Mermoz also holds the long distance flight record for seaplanes. He intends also shortly to attempt to make this crossing again in a new and larger seaplane, which is being constructed for the Aeropostale System by the Latécoère Company.

Antoine Paillard is the chief pilot of the Bernard Company, the constructors of the "Tango" 'plane. This Company is also building a speed seaplane to contest for the Schneider Trophy next autumn. Paillard recently flew over 500 km/hr. (310 m.p.h.) using a training plane in one of the preliminary tests. He has also figured in several long distance flights with Joseph le Brix and other well-known airmen.

The Bernard 80, "Tango" plane, is a low wing monoplane of wooden construction. It is well streamlined throughout and has a "finesse" of 17.5. It is of the type used by Assolant, Lefevre and Lotti in their 1929 transatlantic crossing.

The General characteristics are as follows :—

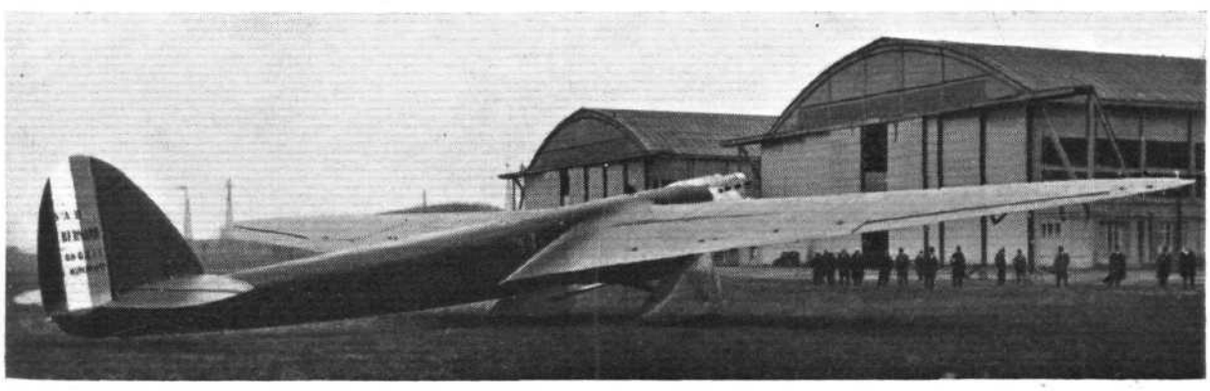
Total wing surface ..	70 sq. metres (740 sq. ft.)
Wing spread	24.60 metres (80 ft.)
Length	15 metres (49 ft.)
Weight, empty	3,000 kgs. (6,615 lbs.)
Weight, fuel	5,400 kgs. (11,907 lbs.)
Weight, useful load (pilots, etc.)	450 kgs. (992 lbs.)
Weight loaded at "take off"	8,850 kgs. (19,514 lbs.)

Performances.

Maximum ground speed	250 km/hr. (155 m.p.h.)
Cruising speed	185 km/hr. (115 m.p.h.)
Theoretical ceiling, at "take off"	2,500 metres.
Flight radius (no wind prevailing)	13,000 kms. (8,078 miles.)

It is currently reported that these French 'planes, the Blériot, the Dewoitine and the Bernard, which have been making record performances over closed circuits will shortly make long distance flights in a straight line across the European continent.

R. C. W.



Front (upper picture) and three-quarter rear views of the Bernard type 80 G.R., Monoplane, fitted with a 650 h.p. Hispano-Suiza engine.

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U.S. Airwoman's Altitude Record

ON April 9, at New York, Miss Eleanor Smith made what may prove a successful attempt to beat the altitude record for women pilots, when she reached a height of 32,000 ft. She only had sufficient fuel for five minutes' flight when she started to descend.

THE STOUT "SKY CAR"

Exhibited for the first time at the National Aircraft Show at Detroit, this machine is a "pusher" cabin monoplane of all-metal construction, fitted with an inverted four-cylinder in-line air-cooled Rover engine of 75 h.p. The occupants are seated in tandem, one of the least attractive features of the machine

MR. "BILLY" STOUT, who created the Ford tri-motored monoplanes now so well known all over the world, has now produced another "Tin Lizzie," which is shown for the first time at the Detroit Show. The new machine is a "pusher" monoplane, in which the occupants sit in tandem ahead of the wing. The new machine has been named the "Sky Car," but doubtless it will very soon be given some nickname appropriate to its somewhat unusual appearance.

There is no doubt that the "pusher" type of aeroplane is being revived after having been moribund for many years. In almost every country one sees attempts made to resurrect the "pusher," and when one remembers the comfort of flying in machines of the old Maurice and Henry Farman types, this is not surprising. The engine noise which reaches the occupants seems to be much smaller; there is no buffeting due to slipstream on windscreens or cabin, and oil and fumes from the engine do not reach the occupants. The old "box kites" were not very efficient aerodynamically, and so when, during the war, speed had to be obtained at all costs, the tractor won the day, and has kept the lead until now. But, as we have said, there are obvious signs of a revival, and the Stout "Sky Car" is one American attempt to provide car comfort in the air.

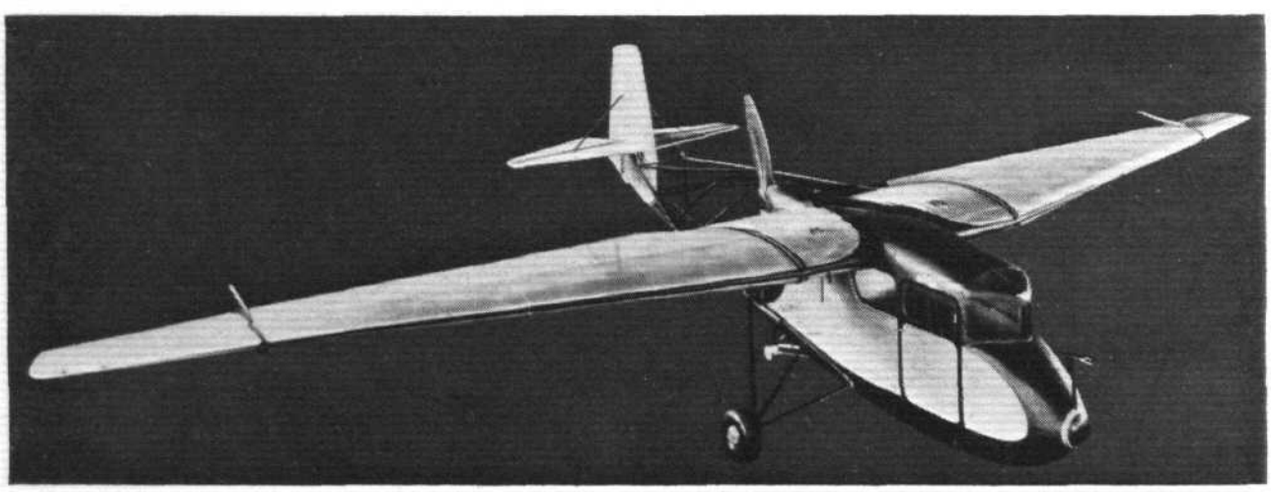
The "Sky Car" is of all-metal construction, and its general design is, if unorthodox, not unpleasing. The first thing to decide in the design of a single-engined "pusher" is whether the tail is to be carried on an extension of the fuselage or on a separate structure. The latter is likely to be lighter and stronger, but the former probably will have a rather lower drag. In the Stout "Sky Car" the open tail girder method of carrying the tail has been adopted, and consists of three booms braced together, two at the top (to the wing) and one at the bottom (to the heel of the fuselage). As a result of this arrangement, the swivelling tail wheel is placed under the rear end of the abbreviated fuselage, and not under the tail, so that landing shocks do not have to be taken by the tail booms.

The pilot and passenger sit tandem fashion in a well-lighted cabin, ahead of the wing, and the view should be good. Two bulkheads separate the cabin from the engine, so that but little noise should be heard in the cabin. The inverted Rover engine is nicely faired-in, and there is an adjustable scoop which admits more or less cooling air to the engine during flight.

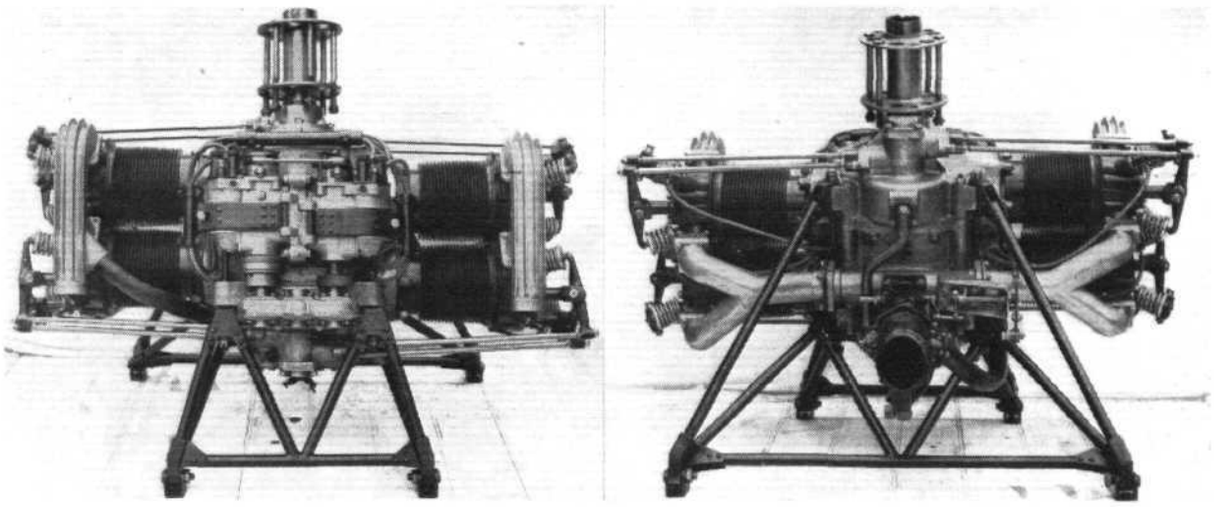
The ailerons found in orthodox aircraft have been replaced by pivoted wing tips similar to the "controllers" used by Capt. Hill in the "Pterodactyl," but they serve, of course, for lateral control only.

Petrol is carried in two tanks in the leading edge portions of the central section of the engine, from which position the fuel is fed by gravity to the engine.

No performance figures are available, but the Stout "Sky Car" has a span of 43 ft. and a length of 23 ft. 6 in. The wheels are fitted with brakes, and the nose is strengthened so that the wheels may be locked and the fuselage touch the ground without doing any damage.



THE STOUT "SKY CAR": Three-quarter front view from above. Lateral control is by pivoted wing tips, instead of by ailerons.



VIEWS FROM ABOVE AND BELOW: Note the two magnetos lying flat on top of crankcase. (FLIGHT *Photos.*)

A.B.C. "HORNET" MODIFIED

THE A.B.C. "Hornet" light 'plane engine has now been in use long enough to enable the makers to discover the particular features which could be improved, and the works at Walton-on-Thames have been busy of late making such modifications as seemed desirable. The engine has not been changed fundamentally, but the modifications made are such that the "Hornet" should now be a really practical and serviceable power unit.

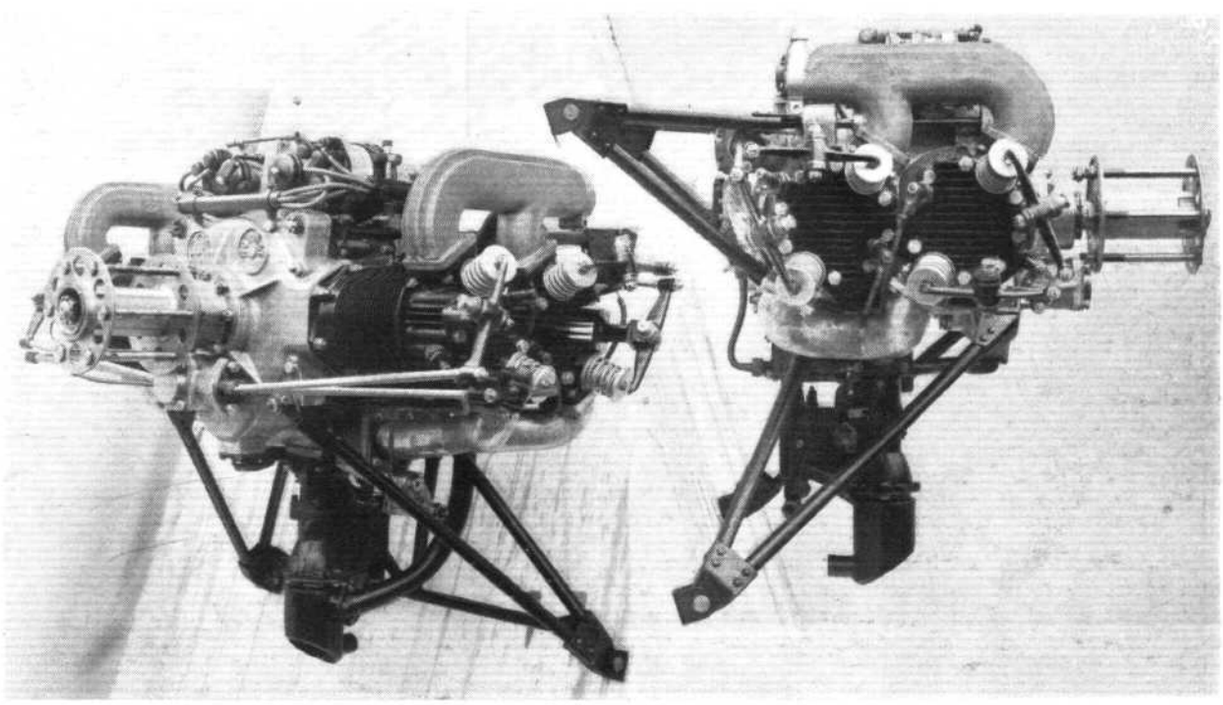
One of the difficulties with the original "Hornet" was to design a mounting which was sufficiently rigid to prevent vibration. Mr. Boultbee, of the Civilian Aircraft Co., Ltd., suggested ways and means, provided the crankcase was modified. This has now been done, and the new type of crankcase enables the engine to be supported from the front as well as from the back, and will be standard in all future engines. The mounting is well shown in our photographs.

In addition to the alteration in the *design* of the crankcase, the material has also been changed, and is now Rolls-Royce "Hiduminium" R.R. 50, which material is also used for the ribbed exhaust-pipe castings. The pistons are also made of "Hiduminium," but of a slightly different composition, R.R. 53.

Dual ignition has been provided, the magnetos being two B.T.H. AG. 4-3 very neatly mounted on top of the engine, where they can be tucked under the engine cowling, yet are readily accessible. One magneto is fitted with impulse starter, and the other with vernier coupling.

The induction pipes have been re-designed, and it is now possible to keep them inside the engine cowling, and thus avoid the undesirable cooling which took place with the old type. The Claudel Hobson carburettor, type AV. 48D, is, as before, mounted under the engine, but a larger diameter heater pipe has been introduced.

These improvements have increased the weight slightly, to 245 lb., but as the engine develops its normal power of 75 H.P. at the low speed of 1,875 r.p.m., the thrust horse-power should be quite good in relation to weight. The maximum power remains as before at 82 B.H.P.



THREE-QUARTER FRONT AND SIDE VIEW OF THE "HORNET": Note the new type crankcase, which enables the engine to be supported in front, as well as at the back. (FLIGHT *Photos.*)

Front view of the Bloudek monoplane. Note the air scoop in the engine cowling.

THE BLOUDEK XV

A Jugo-Slav Low-Wing Monoplane

ALTHOUGH Jugo-Slavia can hardly be said to rank amongst the foremost of aircraft-constructing countries, it will be apparent from the accompanying illustrations that this country is capable of producing a business-like looking aircraft in the Bloudek XV. Hitherto aircraft in Jugo-Slavia have been principally of French construction, and it is only recently that aircraft have been designed and constructed in Jugo-Slavia—the Bloudek being one of these.

This machine was designed by Stanko Bloudek, and was built by members of the Ljubljana section of the Jugo-Slav Aero Club. It is a braced low-wing two-seater monoplane, intended for training or sport purposes.

The wings, in two sections, attached direct to the fuselage, are of wood construction, with "single" bracing by streamlined wires (doubled) to the fuselage (top) and undercarriage (bottom). The forward portion of the wing is covered with plywood, the rest with fabric. Removal of the wings, for transport or housing, is easily and quickly effected. Wood construction is also employed for the control surfaces.

The fuselage, of rectangular cross-section with streamline top, is of wood construction also, the cockpits being arranged in tandem with the pilot's at the rear.

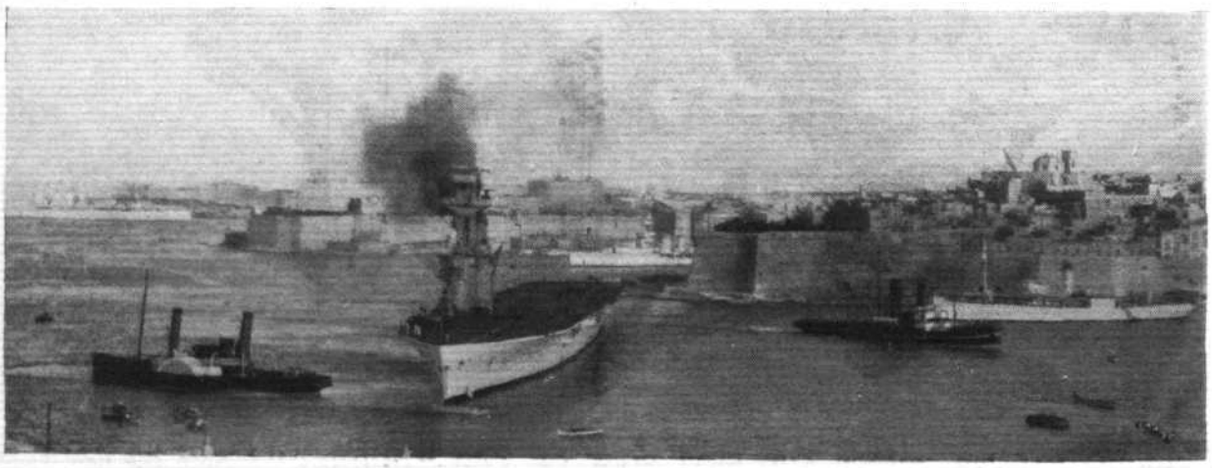
A "V" type undercarriage is employed, with steel tube struts and cross axle, the shock-absorbers being housed within the wheels.

The Bloudek XV is fitted with a "Cirrus II" engine, completely enclosed in a very neat aluminium cowling, cooling being effected by means of an air scoop in front, on the exhaust side of the engine. Fuel is carried in two tanks, one in the fuselage and the other in the right wing.

The main characteristics of the Bloudek XV are :—Span 9·4 m. (30 ft. 9 in.). Overall length, 6·8 m. (22 ft. 4 in.); wing area, 13·2 sq. m. (142 sq. ft.); weight empty, 370 kg. (814 lb.); useful load, 240 kg. (529·2 lb.); weight fully laden, 610 kg. (1,345 lb.); wing loading, 46·2 kg./sq. m. (9·4 lb./sq. ft.); power loading, 7·6 kg./h.p. (16·75 lb./h.p.); speed range, 75-195 k.p.h. (46·6-121 m.p.h.); climb to 1,000 m. (3,280 ft.), 3 min. 15 sec.; ceiling, 5,550 m., (18,040 ft.); normal range, 700-900 km. (435-560 miles); take-off in 50 m. (164 ft.); land in 80 m. (262 ft.).

F. W.

A JUGO-SLAV LIGHT 'PLANE : The Bloudek XV low-wing monoplane, which is fitted with a "Cirrus II" engine.



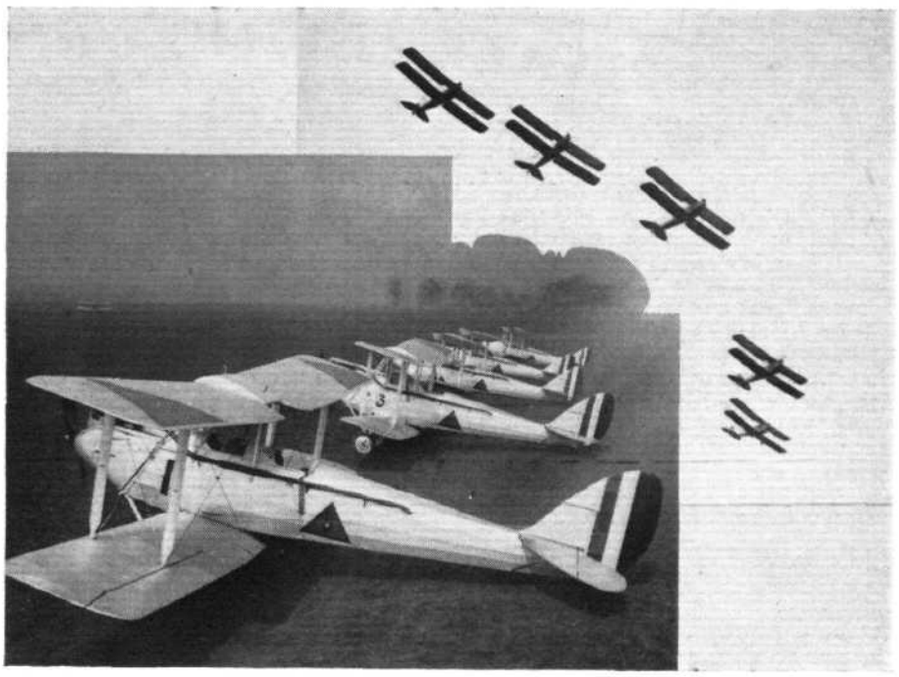
AT MALTA : H.M. Aircraft Carrier "Eagle" leaving Malta Harbour.

THE IRAQ FLYING CORPS

First Unit Starts From Hatfield

THE kingdom of Iraq is to have a Flying Corps as a branch of its army. So far as we understand the situation, the new flying unit is to be a corps of the army, and not a separate air force, as stated in a number of papers which have become accustomed to the latter term. At any rate, the pilots who have been chosen and trained are army officers and hold military rank. They have all passed through the Military College for Iraq Army officers in Baghdad, and since then have been sent for flying training to Great Britain. First they were sent to Cranwell, and after completing their course there, they were attached to various squadrons of the Royal Air Force for further practical training. One of them, Lieut. Tae, appeared in the group of officers of No. 33 Bomber Squadron which we published in our special R.A.F. Display issue on June 27 of last year. These officers, who had all passed out of the Baghdad College with honours, came over here in 1928, so that they have had a thorough training in the methods and practice of the Royal Air Force. In the meantime, Sqdn.-Ldr. P. Warburton, R.A.F., was appointed air adviser to the Iraq Ministry of Defence.

Once the officers had achieved competence, the next step was to organise a unit. It was decided to make a humble beginning with a flight of light aeroplanes, and the Gipsy Moth was chosen as the first standard type. It has the advantage that when the unit is re-equipped with more powerful aeroplanes, the Moths can still be used for training work and other general flying. Five Gipsy Moths were ordered, four of which carry bombs, complete wireless installation and cameras, as well as extra petrol tanks, drinking-water tanks, and other special desert equipment. They have a range of nearly 600 miles, and will be very suitable for light reconnaissance and offensive duties. Five of the six officers who were sent to Great Britain three years ago were selected to fly these three Moths over from England to Baghdad.



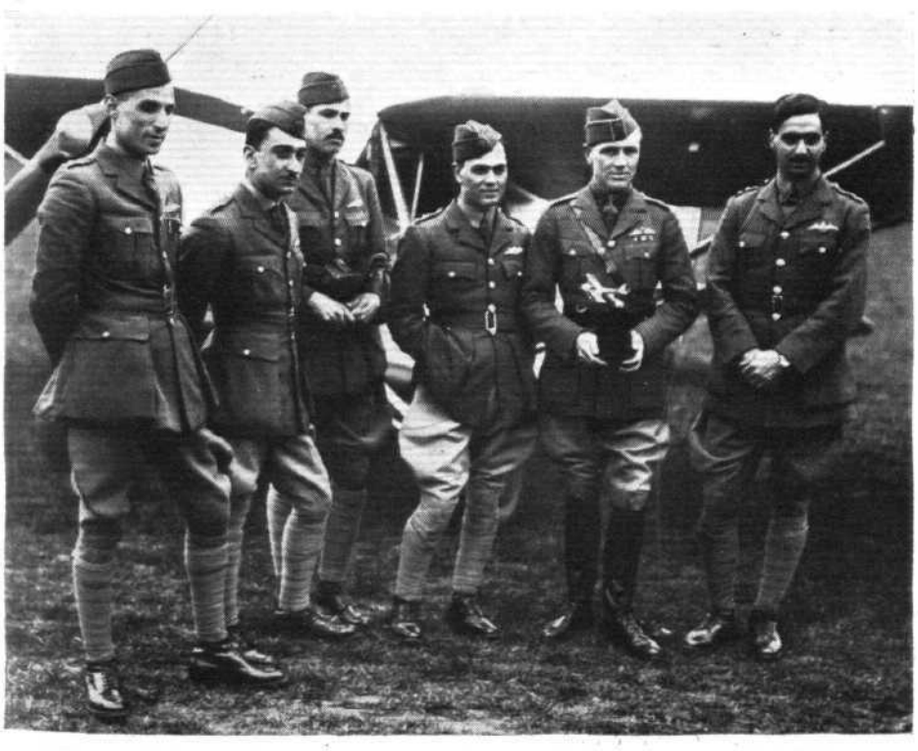
The five Gipsy Moths of the Iraq Flying Corps which left Hatfield aerodrome on Wednesday, April 8, to fly to Baghdad. They are shown on the ground and flying in formation. (FLIGHT *Photo.*)

At the same time H.M. King Feisul bought a " Puss Moth " for his own private use. The King is no novice in the air, and is well aware of the advantage of being able to make a rapid journey on occasions. No doubt, he has not forgotten the fact that his old friend Col. Lawrence entered the R.A.F. when he had finished his work for Arabia. The King's " Puss Moth " is being flown to Baghdad by Flight-Lieut. G. L. Carter, of the Royal Air Force, who has been put on special duty for three years with the Iraq Government.

The six machines started from the De Havilland aerodrome at Hatfield on Wednesday, April 8, the five Gipsy Moths flying in formation. Before the start, Mr. F. T. Hearle, general manager of the De Havilland Aircraft Co., Ltd., presented Lieut. Jawad, the officer commanding the unit, with a silver model of a Moth in memory of the function and the birth of the Iraq Flying Corps. Among those who were present at the start were Air Commodore Mitchell and the Iraq Minister to London.

The flight is proceeding to Baghdad by easy stages. They made Paris on the first day, and are proceeding via Italy and Greece before crossing the Mediterranean.

The latest news of their progress is that the flight arrived at Milan on Friday, April 10, all present and correct. There is no intention of hurrying the journey, and doubtless a little time spent at the towns en route will be good propaganda for the new Flying Corps at Iraq.



The pilots of the Iraq Flying Corps. Names, left to right:— Lieuts. Mushtaq, Ali, Aziz, and Tae, Flt.-Lt. G. L. Carter, R.A.F., and Lt. Jawad, O.C. Squadron. Flt.-Lt. Carter is holding a model of a Moth presented by the De Havilland Aircraft Co. Ltd.

(FLIGHT *Photo.*)

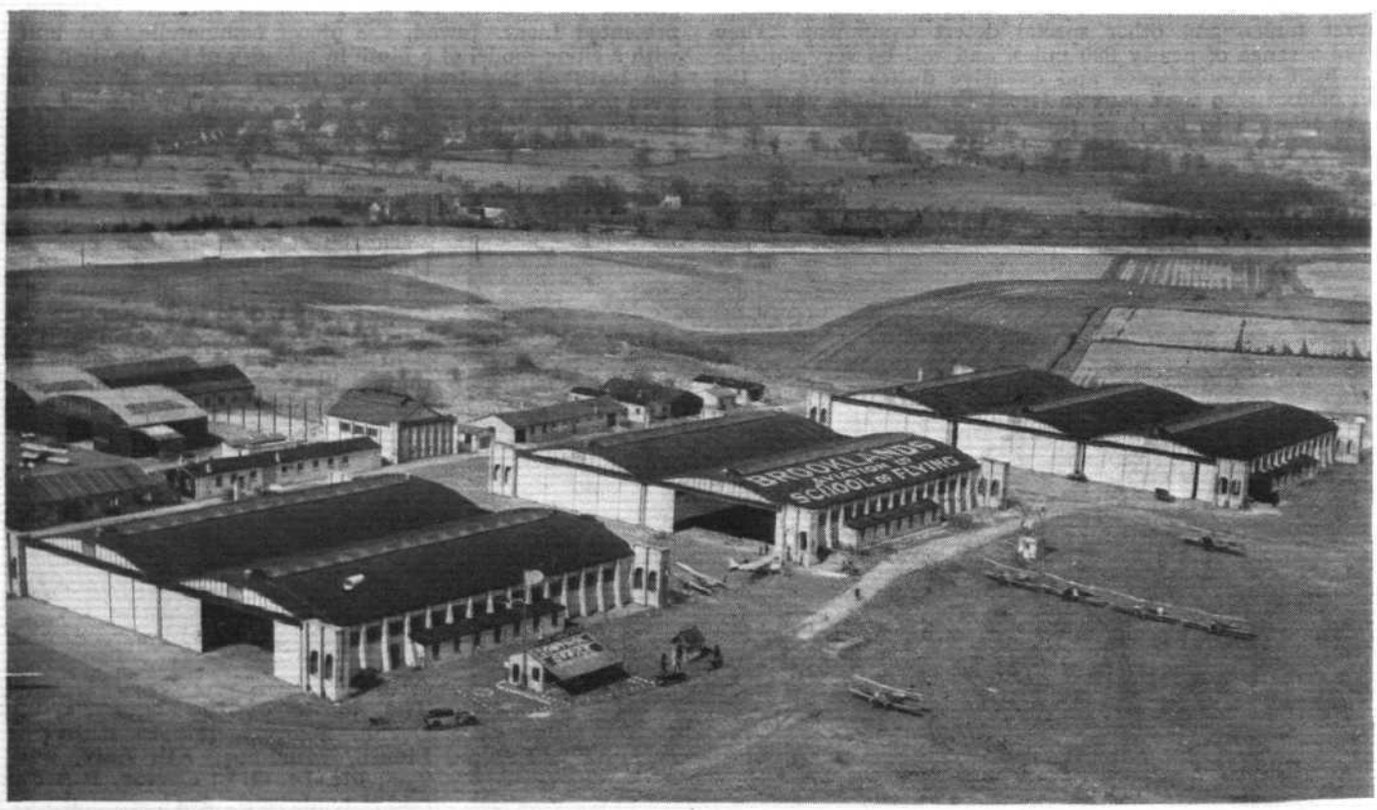
PRIVATE FLYING & CLUB NEWS

AN AIR RALLY AT ASTON CLINTON.—Miss Sicele O'Brien who, as everyone knows, has been in spite of very serious set-backs extraordinarily persistent in her efforts to further aviation, is organising an opening Air Rally at Aston Clinton, which is on the main road between Tring and Aylesbury, on Saturday, April 18. There will be an aerial treasure hunt, starting from Hanworth and finishing at Aston Clinton about midday. During the afternoon there will be some of the usual flying displays and demonstrations, amongst others, of the Autogiro. Aston Clinton has for many years been regarded as one of the show places of Buckinghamshire, and is typical of the old English country houses. It has now, however, been equipped as a sports and country club hotel and offers every facility, including golf, tennis, croquet and hunting, to its visitors.

HASTINGS, BEXHILL AND DISTRICT LIGHT AEROPLANE CLUB.—In the face of much ill-advised and uninformed criticism and hostility, a light aeroplane club has been formed in the Hastings and Bexhill district. The Honorary Secretary is Mr. H. G. Macleod, 14, Cornwallis Gardens, Hastings, while a committee consisting of Mr. R. Waters, Capt. Thompson, Miss J. M. Ritchie and Messrs. L. G. Pugh, J. S. Crannock and G. P. Butcher has been formed. Much of the opposition has been by residents who think that they will now live under a barrage of incessant noise. This has never yet been found to be the case at any provincial town which has a light aeroplane club, and we do not think that these residents need have any fear that their slumbers will be disturbed during the summer afternoons. The aerodrome would, of necessity, be a few miles from the town itself, and the modern light aircraft engine has been silenced to such a degree that when flying many of them make very much less noise than does the average motor cycle. If residents are prepared to put up with the valve clatter and exhaust noise of badly-driven motor cycles, and to welcome the trade which they bring to their town, there is no reason at all why they should not welcome aircraft, a very much lesser evil of modern progress. The existence of the light aeroplane club, even though it may at first be small, in the vicinity of such a town as Hastings, cannot but be an advantage, since, although the majority of flying may be of a club nature, there are always occasions upon which visitors would welcome the existence of an aerodrome in any particular district, and we cannot believe that Hastings is so prosperous as to wish to keep away visitors.

AN AEROPLANE CLUB for Hereford.—Progress in establishing a municipal aerodrome at Hereford has not been very evident for some time, but now that there is a movement on foot to establish the Hereford Aeroplane Club we trust that this latter may be the means of making the authorities wake up to the value of having their own aerodrome. The Lord-Lieutenant, Sir John Cotterill, Bart., has consented to become patron to the club. The subscription has been fixed at £3 3*s*. for pilot members, £2 2*s*. for ordinary members who are entitled to fly only as passengers, and 10*s*. 6*d*. for junior members. A committee has been formed, and Mr. P. Gwynne James, of Marston House, Belmont Road, Hereford, will be glad to furnish further particulars to anyone in the district who is interested.

CINQUE PORTS Flying Club.—Mr. Chater, who passed his tests for the "A" licence on Sunday, March 29, was the 79th pilot to do so at Lympne. A new subsidy came into force on April 1, the beginning of the fourth financial year of the club, and it is expected that it will result in a reduction in the amount received from the Government per annum by about 80 per cent. Rates for instruction will remain at 40*s*., and for solo flying at 30*s*. per hour respectively for British subjects, while foreigners will have to pay £1 extra on the above rates. The entry fee for flying members has now been raised from £1 to £3, and members keeping their private aircraft in the club hangar will be charged a housing fee of 10*s*. 6*d*. per week. At the end of the financial year on March 31, the membership was 151, made up of 68 licensed pilots, 56 unqualified flying members and 27 ground members.



PERFECT AERIAL PHOTOGRAPHY. English weather, so often fickle, gave our photographer a chance recently which he was quick to seize and the result was this crystal clear picture of Brooklands, showing the new home of the Brooklands School of Flying sandwiched between the sheds of the Vickers and Hawker companies. (FLIGHT *Photo.*)

PHILLIPS & POWIS, LTD., of Reading, had the satisfaction of the safe arrival of Mr. T. C. Saunders and Mr. M. Simaiki at Cairo, whence they had flown by easy stages in a Moth (Gipsy II), after being trained by the club and having had comparatively small solo experience. The spring seems to have affected the Sales Department, and during the last three weeks three Puss Moths besides several secondhand aircraft have been sold.

AN INTERESTING LECTURE.—The Museum and Art Gallery committee of Reading have arranged with Mr. Lloyd Taylor, of Imperial Airways, to give a lecture on "Safe Aviation and its Development" (with special reference to the London-India and London-Capetown air routes), on Wednesday, April 22, at 7 p.m., in the large Town Hall, Reading.

Essays of not exceeding 1,000 words are invited on civil aviation from school children of over 12 and under 17 years of age, and these should be sent in not later than May 1, to the Curator, Museum and Art Gallery, Reading. Prizes for these essays will take the form of three free flights over London, with tea in the air (by kindness of Imperial Airways), and three free flights over Reading (by kindness of the Reading Aero Club).

EDUCATING THE YOUNG IDEA: At the Schoolboys' Exhibition in January last, Henlys, the Avian Agents, instituted an essay competition with free flights as the prizes. The 50 winners were given their flights at Heston on Wednesday and Thursday, April 8 and 9. The broad gentleman on the left is Mr. J. Holman, the Sales Manager of the Cirrus-Hermes Engineering Co., Ltd., who took up many of the boys in the Company's Avian (Hermes) in front of which they are standing. On the right are Mr. B. S. Allen, Henly's Aviation representative and his assistant, Mr. Stace, who of course also used Avians for this work.

GLIDING

LONDON GLIDING CLUB.—Although the weather was not altogether favourable, the Easter gliding camp held by the London Gliding Club was very successful. Some 21 members attended and carried out a great deal of flying on each day. The new Professor-type sailplane, which has been acquired by the generous co-operation of a small group of enthusiastic members, was erected for the first time, and Mr. G. M. Buxton made the first flight on it, of 1 hr. 8 min. Major Petre, Capt. Needham and Mr. Marcus Manton also made excellent flights on the same machine. Many others put in long flights on the Prüfling. On Sunday there was a very much lighter wind than on the previous day, and soaring flights on the Prüfling were only made with difficulty. Mr. Symmons qualified for his "C" certificate, and Mr. Kenerly for his "B." Mr. Buxton made an exceptionally fine flight of some 3 hr. in the Professor on April 12, completing what is believed to be the longest soaring flight made by an Englishman. Throughout the whole time the training gliders were kept hard at work, and a large number of members were brought near unto taking their "A" certificates.

During the following week-end, when Mr. Buxton made his long flight, the club again showed great activity, and at one time there were three soaring machines in the air at once, namely, the Professor, the Prüfling, and the Poppenhausen two-seater. Capt. Needham's Albatross is also being overhauled, and it is expected that it will be flying soon. Those interested in gliding in the London district should apply to the Secretary, London Gliding Club, Empire House, St. Martins le Grand, London, E.C.1.

THE SCUD.—It will be remembered that in FLIGHT for February 6 we published details of a new small glider, "The Scud," which was designed by Mr. Baynes and built by the Brant Aircraft Co. with a view to replacing and doing rather better than, the imported Prüfling. We understand that Mr. Baynes has now been successful in obtaining the rights for manufacturing this machine, and has entered into an agreement with E. D. Abbott, Ltd., of Farnham, under which the machine will be put into production and will incorporate certain new improvements.

THE BRITISH GLIDING ASSOCIATION.—We are informed by the Secretary of the British Gliding Association that the report of his speech at the joint meeting with the Association of Northern Gliding Clubs may be subject to misconstruction, and concerning the announcement that the British Gliding Association were already considering dividing Great Britain and Northern Ireland for the purpose of fixing area organisation, he says, "Although this will probably be the eventual policy of the B.G.A., and although it has received a certain amount of discussion, I would like to make it quite clear that what I may have said at the meeting referred to was not intended to imply that such an organisation as indicated was the immediate policy of the B.G.A., or that such a policy would be a practical proposition at the present time."

GLIDING IN TORONTO.—The three glider clubs of Toronto have been amalgamated into the Glider Section of the Toronto Flying Club. They will operate their

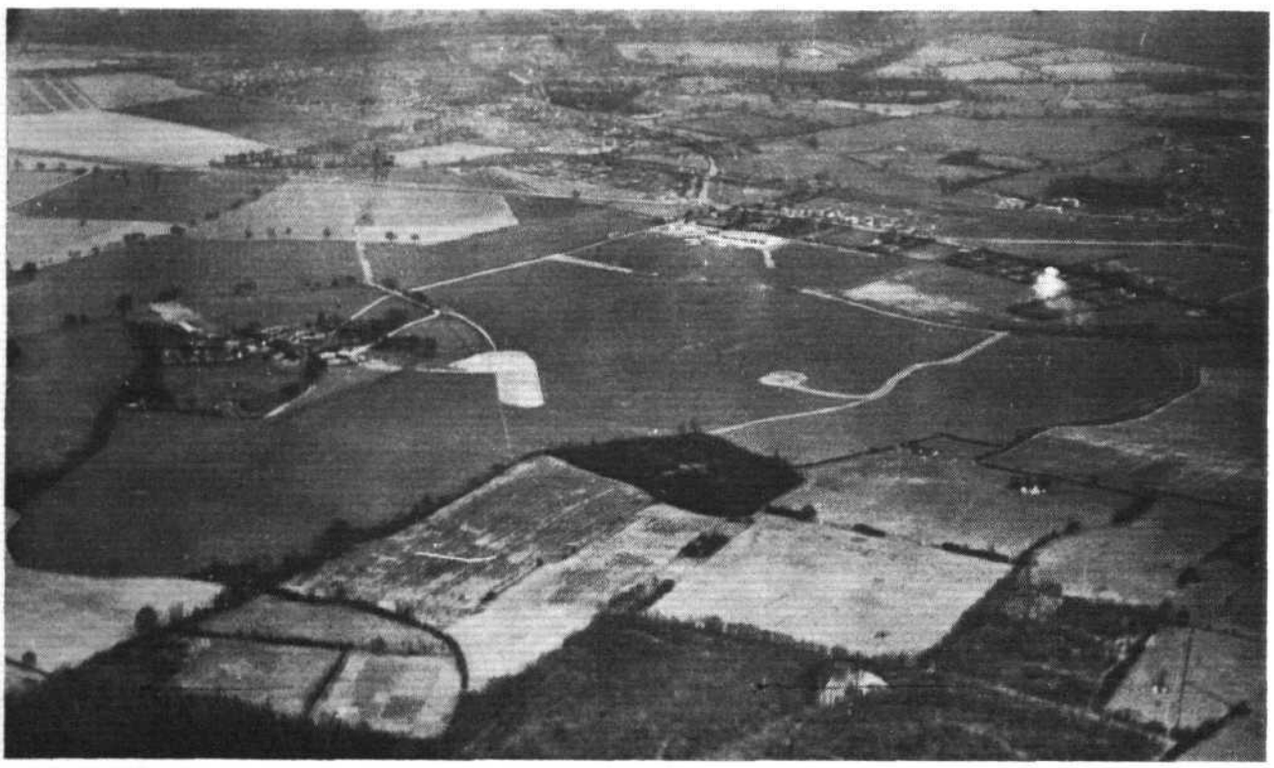
machines from the hills and over the valleys in the neighbourhood of Richmond Hill, and have formed a constructional section which will be quite capable of repairing any damage that may accrue to the machines. This is an excellent move on the part of the Toronto club, and it is expected that many of the glider pilots will eventually graduate as full flying members of the motor club. It is also hoped that many of the existing pilots of the Flying Club will join the glider section.

PORTSMOUTH AND SOUTHSEA GLIDING CLUB :— Sunday, April 12, was an ideal day for flying on Portsdown Hill, and some 25 glides were made, the longest being 44½ sec. Members are advised that the glider is now kept in the chalk pit which is a very much more convenient and central position. Herr Krause, a well-known German pilot, inspected the site with a view to a forthcoming soaring demonstration and announced that he considered it excellent with the wind in the prevailing direction.

SOUTHEND-ON-SEA has now formed a gliding club with a membership of 20, and a start has been made on the construction of a primary type glider. Those in the district who are interested should communicate with the hon. secretary, 43, Northview Drive, Westcliff-on-Sea.

THE NEW D.H. SCHOOL

Situated only 18 miles from Charing Cross and on the Barnet By-pass road, this School is within easy reach of London



HATFIELD is the new venue of the De Havilland flying School, and it is from here that the recent nucleus of the Iraq Air Force, composed of a Puss Moth and five Moths, left for Iraq under Flt. Lt. Carter.

The school is admirably equipped with buildings which include large hangars and a well-appointed club lounge, smoking room and restaurant.

Foreign visitors, no doubt because of the excellent name D.H's. have abroad, choose this school in large numbers when they come over here to learn to fly, and, of course, the school is one of those used by the Air Ministry for training of officers for the R.A.F. Reserve.

The aerodrome is large and the approaches good, while the surrounding country is also admirable for forced landings should these become necessary.

(FLIGHT *Photos.*)

AIRPORT NEWS

CROYDON WEEKLY NOTES

IT was most unfortunate that the weather on Easter Monday was bad, but the Continental services were in no way affected. The local joy-riding concerns must have lost a considerable sum of money, as the weather kept hundreds of potential passengers away. The weather improved on Tuesday, and has been reasonably good since. All companies report that their passenger lists are growing daily.

On Tuesday, the first machine since the war flying under the Austrian flag, entered the country and stayed a few days at Croydon. Although the machine was actually a Gipsy Moth, she bore Austrian markings, and was piloted by an Austrian—Herr Guritzer. The actual owner is a British resident in Vienna, and I understand is a representative there for a famous British soap manufacturer. He came as passenger, and on Wednesday, made a trip to Birmingham and Manchester. Arriving back at Croydon on Friday, they left in the afternoon on their journey back to Vienna.

Another interesting visitor during the week, was a machine from Denmark, piloted by Lieut. Klaussen Klaus. He was here on a visit to the Danish Legation. The machine is known as an Argo, and judging by the exhibition of stunting the pilot gave us, must be very strongly constructed. The markings were OY-DID, and caused much amusement.

On Wednesday, Capt. Neville Stack and Mr. Chaplin left here on a test flight on the Vickers Vivid, to Berlin and back in a day. They succeeded in getting back as far as Flushing, and completed the journey on Thursday. Determined not to be beaten, they tried again on Sunday, from Heston, and did the return trip successfully, in a little over 10 hours—a very good show.

The Spider is back here after its tour, and is resting on its laurels in the hangar, after a very exciting collision at West Malling Aerodrome, Maidstone. It is understood that a Desoutter aircraft, piloted by Mr. Philip Meadway, unfortunately taxied into the Spider, and damaged the door and rudder. Both machines had a very good day joy-riding, and about 5,000 people paid for admission. Capt. Barnard's tour seems to have started very well.

On Friday, Imperial Airways had a special for Venice, with a large party headed by the Hon. A. Guinness. Capt. Gordon P. Olley was the pilot. The Hon. A. Guinness himself went by Moth, piloted by Mr. Allison. I understand the party are eventually joining the Guinness yacht in the Mediterranean, for a cruise.

Mrs. Spencer Cleaver arrived on Friday, by the Imperial Airways Silver Wing Service. She was greeted by an army of journalists and photographers. She is reported to have flown round the world by air, showing how the network of airways has grown yearly.

A great deal of controversy is being caused through a new gutter which has been placed on the edge of the arrival and departure area. This gutter is about 18 in. wide, and is filled with loose cinders to drain away surplus water. The contention is, that it is ruinous to tail skids, particularly those on the heavy machines. No doubt, the companies have a good cause for complaint, and I cannot see the advantage that has been gained by the gutter. It is impossible for a machine to taxy over it without giving the tailskid a nasty jar.

The white line across the aerodrome which has been laid down by the Air Ministry, to assist pilots in foggy weather, has now been completed.

At long last we have some news regarding Hannibal. The first machine G-AAGX, is now due to leave Radlett for Martlesham Heath for her tests, and, weather permitting, she should have almost completed them by the time these notes appear in print.

The bright week-end made up for the slackness of the previous Monday, and all connected with joy-riding were busy. Private owners were to the fore—and Le Touquet seems to be the chief week-end attraction.

I hear strong rumours that Major Brackley and Capt. Gordon Olley will shortly be proceeding to Madrid.

Croydon looks like having a busy time again.

The full summer services come into operation next Monday.

The traffic figures for the week are: Passengers, 942; freight, 37 tons.

B. P.

BRISTOL AIRPORT

THE Easter holiday period brought considerable traffic to the Bristol Airport, in spite of moderate weather conditions. Arrivals from other parts of the country included aircraft from the Irish Free State, London, Manchester, Birmingham, Teignmouth, Liverpool, and the Isle of Wight.

The majority of these called at Bristol to refuel and take lunch, and then proceeded to their destinations, which usually lay west of Bristol, and in one case Land's End.

On Good Friday, Mr. A. H. Downes-Shaw, the Chairman of the Bristol & Wessex Aeroplane Club, left Bristol Airport for Nice in his Gipsy Moth, and he was accompanied by his sister, who has recently returned from Uganda.

The Bristol & Wessex Aeroplane Club took deilvery of their new Spartan Arrow on Saturday, the 4th April, and the machine was in commission for club flying over the week-end. The Club financial year ended on March 31, and the records show 1,651 hours flying on club machines for the year. These figures reflect considerable credit on Capt. R.W. M. Hall, the chief instructor, and his assistant Fl./O. W. N. L. Cope.

Messrs. Phillips and Powis expect to begin their Air Taxi service at the Bristol Airport on April 18, and already have concluded arrangements for the hire of their machines by certain commercial organisations in the Bristol district.

The new hangar which is being built for the Bristol branch of Messrs. Airwork, Limited, is nearing completion, and should be ready for occupation this month. This hangar contains a number of private lock-ups for the use of West of England private owners.

HESTON NOTES

BETWEEN Wednesday and Friday of last week, there filtered back to Heston the various units of the party which had set out to go to Seville for Easter Sunday. Having for the most part, arrived at Perpignan too late on April 1 to proceed to Barcelona that evening, they had got up at 4 a.m. the following morning in the hope of making up for lost time, but their hopes of doing so were dashed on seeing the "Aeropostale" machine return twice after unsuccessful attempts to cross the Pyrenees. It having become clear that there would be small chance of reaching Seville with any time to spare and that most of the party would then be compelled to turn straight round and come home again, it was decided to spend the holiday in France.

The programme was changed, accordingly, and groups of machines visited Cannes, Nîmes, Nice, Tours and Chartres, and only the Bluebird, which had resolutely pushed on in the evening of April 1, actually reached Seville.

When told that there were 37 aircraft out and about Heston on Saturday last, Mr. Ivor McClure, who was in process of making the number up to 38, pointed out that a year ago we should have called this a tolerably well-attended aviation meeting. Actually, there were no side shows of any kind on this occasion, which was nothing but a rather fine Saturday afternoon.

Members of Heston Air Park may now hire the Company's machines at £3 an hour for solo flying, subject to making a deposit of £25, which is returnable. Particulars will be sent on request.

AIR TRANSPORT

IMPERIAL AIRWAYS

AS foreshadowed a little while back, we understand that arrangements have now been completed for the original trans-European air route of Imperial Airways to be resumed—probably on May 17. New agreements with Italy allow the old route, which runs from Genoa through Naples to Corfu, thence to Athens, to be used for one year. It is reported that Italy is anxious that Imperial Airways should ultimately make use of an overland route, with a final call at Brindisi.

A return to the old route should result in a considerable saving of time, for at present, the route via Cologne, Nuremberg, Vienna, Budapest, Belgrade, Skoplje and Salonika, takes much longer, and, we believe, also has certain other disadvantages, especially in winter. By the other route, machines will fly via Paris to Basel, whence the journey is continued by train during the night to Genoa, the aerial route being resumed the following morning.

Plans for speeding up Empire air routes are, we understand, also in hand by Imperial Airways. After the first inauguration of the Central Africa air mail, a series of misfortunes somewhat interrupted the service—in the first place the flying boat serving the southern part of the route was put out of commission, and the relief machine also came to grief, while secondly, a breakdown of the telegraph services along the route in the Sudan and Uganda, which, together with the fact that the consignment of spare parts previously sent by surface transport to the Great Lakes had been damaged, prevented repairs being carried out quickly. These troubles have now, we believe, been rectified, and the service is being run according to schedule.

While on the subject of the African Service, it may be of interest to note that it is reported that Lt.-Commander Glen Kidston is formulating a scheme for the extension of the internal air services of South Africa, and negotiations have been begun with the Union Airways Company, which is already operating a small mail and passenger service. He is making an aerial tour of South Africa to survey the position, as he considers there are big opportunities for feeder lines to Imperial Airways' London-Cape route.

The experimental air mail to Australia, which left Croydon on April 4, is, on the other hand, making good progress. It arrived at Karachi at 9 a.m. (G.M.T.) on April 12, and reached Calcutta on the morning of April 14 (having averaged 110 m.p.h. from Allahabad) and Akyab in the evening.

Meanwhile, the trans-India section of the route to Australia assumes a more permanent aspect with the news that the Indian Government has recently placed an order with A. V. Roe & Co. Ltd., for a number of Avro Ten monoplanes to be used on the Karachi-Calcutta route, which will run via Hyderabad, Jodhpur, Delhi, Cawnpore, and Allahabad. The route will have a total distance of 1,569 miles. We understand that the longest stage called for is 690 miles. The Avro Ten is normally provided with tankage for 400 miles only, when it has a pay load (when fitted with Armstrong Siddeley "Lynx" engines) for a gross weight of 9,920 lb. of 1,800 lb. However the Certificate of Airworthiness covers a gross weight of 10,600 lb., so that the desired range can be provided by a reduction of only some 300 lb. in the pay load, bringing it to somewhere in the close neighbourhood of 1,500 lb. The Avro Ten has a maximum speed of 115 m.p.h. and a cruising speed of about 100 m.p.h. The Indian population is already more or less accustomed to seeing K.N.I.L.M. Fokker monoplanes flying overhead, and doubtless it will regard the new British machines as additions to the Dutch fleet of aircraft.

AT THE END OF THE CAPE AIR ROUTE: An aerial view of the City of Capetown; at the top left-hand corner of the picture is Table Bay, and to its right the railway station. The dark patch in the centre is the Capetown Botanical Gardens.

Air Services in West Africa

THE Council of the London Chamber of Commerce, on the advice of its Civil Aviation and West African sections, has recently made representations to the governors of the four West African Colonies urging the importance of providing internal air transport facilities. The establishment of an air-mail service is also advocated which might link up these colonies with the terminus of the French air line at Dakar or St. Louis, and so speed up communications between West Africa and this country, pending the time when a through service from Great Britain is created. It is considered that, in view of trade development in British West Africa, such air-mail facilities would be welcomed by the business community. The Chamber's representations emphasise that, in the development of commercial aviation, the carriage of mail is of primary importance, a view which was supported by the Twelfth Congress of the Federation of Chambers of Commerce of the British Empire, held in London in May, 1930, and was also brought to the notice of the Colonial Office Conference in the following month. Although his report has not yet been published, it will be remembered that an Air Ministry official visited West Africa in the autumn of 1930 to examine the possibility of developing civil air transport.

A DOCKING DEVICE FOR AIRSHIPS

By ERNEST PITMAN

Mr. Ernest Pitman, who is Governing Director of the well-known house of Sir Isaac Pitman & Sons, Ltd., has sent us the following suggestion for a device for docking rigid airships. Mr. Pitman is, although the fact may not be generally known, among British aviation pioneers, having had a Voisin biplane at Isle of Sheppey during the years 1909-1910. It is gratifying to learn that Mr. Pitman still takes an interest in aviation

THE use of dirigibles is at present somewhat curtailed by the difficulty experienced in taking them out and returning them to their sheds unless the atmospheric conditions are extremely favourable. Waiting for suitable weather involves the handling party standing by for considerable periods of time, so as to be ready for suitable weather conditions for the airship's emergence or its return to the shed.

This can be avoided by making use of a device which consists of a cradle to hold the dirigible when taking it from the shed until the dirigible can be turned to face up wind or when returning it to the shed by similar means.

The cradle or chassis should be approximately the length of the dirigible, and have affixed to it semi-circular girders spaced to correspond with the main circular girders of the dirigible. Where the power units are attached to the airship the girders of the cradle would have to be specially adapted. These girders of the cradle should have hinged extensions so that they can be elevated or retracted (by air pressure applied through a piston) so as to embrace the dirigible.

The cradle should be supported by aeroplane wheels along its entire length and breadth, and at its extremities along the whole length by steel railway wheels running on square rails. The flange of these wheels should be underneath the rails in order to hold down the wheels and prevent the cradle from being blown sideways by the wind pressure on the dirigible. These rails should extend the whole length of the shed and to a considerable distance outside. The aeroplane wheels are designed to take the weight of the cradle rather than the rail wheels, which should be designed to take side strains. As each pair of the latter come to the end of the rails, the weight is taken entirely by the aeroplane wheels, which are fitted as castor wheels.

The semi-circular girders and the retractable portions should be broad, and formed with a groove approximately the width of the circular girders of the dirigible. This groove and the main trough of the cradle should be covered with balloon tyre covering and fitted with an inner tube connected to a system of tubing in the cradle permitting of the rapid inflation and deflation of the tube in the circular girders in the same way that motor tyres are inflated and deflated.

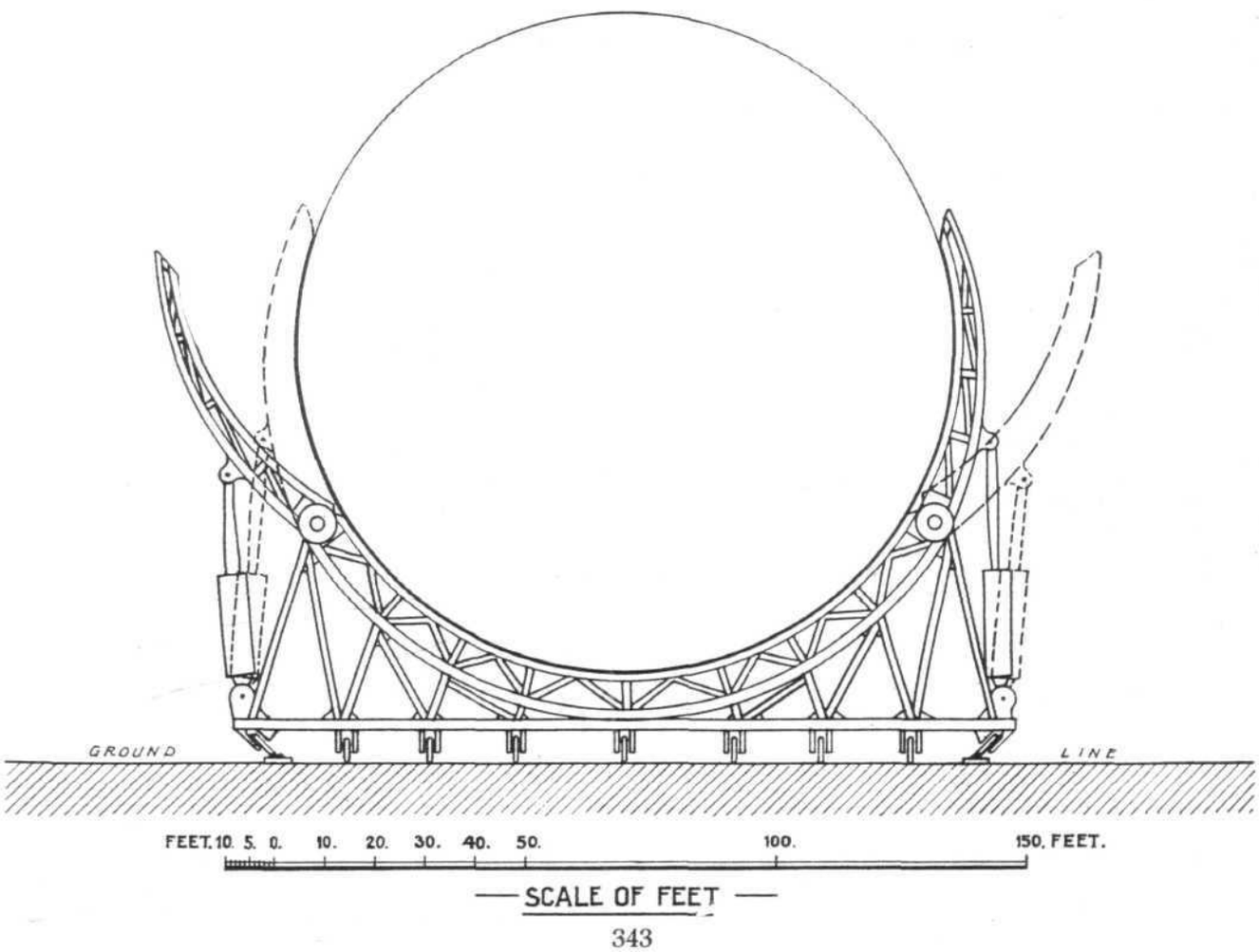
One end of the cradle is triangular in shape, and fitted with suitable means of attachment to a tractor which can tow the cradle and dirigible. On this triangular portion a tripod mast may be fitted rising to a convenient height and fitted with a mooring cable.

On one side at the outer edge of the cradle an electrically-driven air compression plant can be fitted together with penumatic storage tanks necessary to work the retractable arms and to inflate the inner tubes in the circular girders.

On the opposite edge of the cradle an electrically-driven capstan and storage drum may be fitted connected by suitable pulleys to the mooring mast at the end of the cradle.

Both the air compressor plant and the hauling plant would act as ballast to prevent side winds tipping the cradle.

The method of taking out the airship would be as follows :— The cradle would be placed in position under the dirigible in the shed with the tubes in the circular girders inflated and the cable attached to the mast. The cradle would then be withdrawn by a tractor. Other tractors would run parallel to the track of the rails (when the dirigible is outside the shed) with cables attached to the semi-circular girders just



below the hinges so as to help further in resisting any side wind.

When, clear of the rails the cables of the side tractors would be let out, and since the supporting aero wheels are of a castor type the whole cradle would be free to align itself to the prevailing wind. When the nose of the dirigible has been aligned to the wind the tubes would be deflated and the circular girders retracted while the nose of the dirigible is temporarily held to the tripod mast, and finally made fast to the normal mooring mast.

When returning the dirigible to the shed, the cradle would be aligned with the wind, and the cable attached to the nose of the dirigible, which would be hauled down to the cradle. The circular extensions would then be elevated and the inner tubes inflated. The cradle would then be aligned and engaged with the rails by tractors and returned to the shed.

The surfaces of the circular girders and extensions would be brought into close contact with the fabric of the dirigible, as the balloon cover lining to the cradle would adapt itself to any variations of contour. The air pressure would be so adjusted as to give considerable adhesion between the two surfaces without distorting the circular girders of the dirigible. The balloon covers and tubes of the cradle would provide a pneumatic cushion for any portion of the dirigible, which came in contact with them while the dirigible was being hauled down.

"THE PRESENT POSITION IN AERONAUTICS"

ON Monday evening, April 13, Dr. N. A. V. Piercy, Head of the Department of Aeronautics, East London College, University of London, gave the first of a series of three Howard lectures at the Royal Society of Arts, John Street, Adelphi. A large and keen audience listened with rapt attention while Dr. Piercy went through, briefly and yet clearly, the chief scientific principles of flight. We left with the feeling that no one could have heard a clearer and more straightforward explanation of Lanchester's and Prandtl's theories.

Col. Sempill in introducing the lecturer, said that Dr. Piercy was too well known to need introduction and that his work since he first started as a lecturer in 1913 had been of inestimable value in the furtherance of aeronautical science.

Dr. Piercy said that 1913 was the last date on which the Howard lectures had been devoted to aeronautics. He said that there were nothing like so many aircraft in the sky as was predicted at that date and that they would during this series of lectures endeavour to see what were the difficulties and why these predictions had not been fulfilled. On the whole, he considered, he said, that really the outlook was now brighter than even the most thoughtful of those in 1913 had believed it would be and that though many people were pessimistic he considered that manufacturers, designers, and scientists had probably more reason to be pleased with their part in the growth of aeronautics than had the manufacturers, designers and scientists in any similar industry over the same number of years. In the general engineering world, it was, almost invariably, demand which went ahead of design and production work, so that manufacturers were always endeavouring to keep up with that demand. In aircraft, however, the reverse was the case, and both the designers and manufacturers were a long way ahead of the demand.

The lecturer then went on to expound in extremely simple language the general theory of flight and he explained how, in level flight, the thrust of the airscrew balanced the total drag of the machine, and that when this had been done any surplus horse-power available could be used for either increasing the climb, increasing the speed, or carrying more weight. He explained briefly how the landing speed was dependent upon the wing area and how it was generally impracticable to build a machine with a landing speed of less than about 30 m.p.h. without making that machine very unwieldy. In fact, he said, the modern tendency was very much toward increasing the landing speed, and he attributed this very largely to our greater familiarity with high speeds in motor cars which made us worry less about landing aircraft at high speeds.

Dr. Piercy then went on to explain what he somewhat paradoxically called " air's incompressibility " and he showed that for all practical purposes, that is up to speeds of some 200 m.p.h., it made practically no difference whether one assumed the air to be compressible or incompressible, and with a view to explaining this, he drew a mental picture of the type of craft which a mermaid would use if she wished to fly from the bottom of the sea to the top; by means of a suitable formula he showed that except for a greatly diminished wing area, the machine would to all intents and purposes be the same as a normal aircraft. At very high speeds, however, the compressibility of air came into the question, such as for instance the speeds attained at the tips of airscrews, and he said he thought that only when such speeds were reached in level flight would it become necessary to take this fact into consideration.

Thereafter, he explained how the air in passing over a wing lost kinetic energy above the wing and regained this loss by an increase in pressure energy below the wing. By means of a rib section and drawings on the blackboard, he explained Lanchester's theory and showed that the lift was derived from a circulation of air round an aerofoil. Then followed an extremely lucid explanation of Prandtl's Vortex theory and with the aid of Prandtl's well-known photographs of the flow around stationary and moving cylinders and around an aerofoil, he showed the formation of the vortices behind such an aerofoil or cylinder and the circulation generated by these vortices. Subsequent diagrams of the velocity distribution over the aerofoil were used to indicate the way in which the wing derived its lift from this circulation. Early formation of such vortices, was, however, he pointed out, instrumental in breaking up the flow over the nose of the aerofoil and thereby resulting in a loss of lift which this flow, at a high rate of velocity gave to the aerofoil. Furthermore he showed, how the vortices themselves greatly increased the drag behind the aerofoil and that it was therefore highly desirable to maintain a smooth air flow over such an aerofoil at all times.

Brief mention was made of the action of slots in preventing the formation of these vortices and thereby maintaining the smooth flow over the wing and delaying the breakdown of this flow, due to the formation of vortices, until quite large angles of incidence were reached. R.101 was used as an example of a streamline form in which the almost complete elimination of the formation of vortices had been attained.

Finally, Professor Melvill Jones' ideal was explained and the effect which this ideal would have upon horse-power, were it available, was shown by a graph of the horse-power required per 1,000 lb. plotted against speed. This, he said, showed, very clearly, that we had a long way to go yet, but he pointed out we had made great advance in attaining this ideal and he saw no reason why we should not continue to get nearer it.

On Monday, April 20, the second of this series of Howard lectures will be given by Dr. Piercy and he has taken for his main heading " Safety in the Air " ; with, " Excessive loading, how it arises and is measured. The Pilot as a safety valve. Monoplane *v.* Biplane controversy. Wood or metal construction ? The suitable aeroplane and flying without control. Causes of instability. Auto rotation, spinning and the slot. And the Human Factor," as his sub-headings.

An Andrée Museum

THE picturesque little town of Grenna, in central Sweden, the birthplace of Andrée, the polar explorer, is to have an Andrée Museum to commemorate its famous son. The museum will be opened on May 3, and will contain many of Andrée's personal belongings, furniture and household objects from his paternal home. The founders of the museum have performed a good deal of detective work in hunting up the various objects, especially by using old auction lists of things sold from the Andrée house. Thus, Andrée's bookcase was found in a mission house, and by means of an old newspaper cutting an unique painting, representing a Spitsbergen motive with walruses, dedicated to Andrée by the artist 35 years ago, after a long and complicated search, was found in the house of one of Andrée's relatives. The idyllic town is quite excited about its new museum and hopes that it will attract many Andrée admirers.

Change of Telephone Number

THE telephone number of the Royal Air Force Club has been changed to Grosvenor 3456.

AIRISMS FROM THE FOUR WINDS

The Prince of Wales

ON April 9, the Prince of Wales took part in forming an aerial escort for the entry of H.M. aircraft carrier *Eagle* into *Rio de Janeiro*. Ascending from the Brazilian naval landing ground on Governor's Island in one of a flight of four Faireys from H.M.S. *Eagle*, the Prince of Wales flew out to sea and landed on the great deck of the aircraft-carrier as she was steaming towards the harbour. Later, after 18 aeroplanes had taken off one after another, the Prince climbed into a machine and joined in the manœuvres over the harbour and the city. Numerous Brazilian aeroplanes also met the British squadron, which entered the harbour and moored amid booming salutes from sea and land.

London-Berlin-London in One Day

LAST week we referred to the "Dress Rehearsal" for the Australia flight by Capt. Stack and Mr. Chaplin, when they set out from Brooklands on April 8 on a flight to Berlin and back in the Vickers "Vivid." Unfortunately, although they got as far as Berlin, the return journey was cut short by one of those minor troubles which will occasionally crop up when one least desires them to. They got back to England on April 9. The scene, therefore, had to be "shot" again, so at 6.15 a.m. on April 12 they set out once more from Heston Aerodrome for another try. Weather conditions were by no means good and at first they had to fly at 6,000 ft. over a fog bank, while just before Hanover low clouds forced them down to about 50 ft.! However, Berlin was reached at 11.23 a.m. and after refuelling they started on the return journey at 12.50 p.m. Conditions were equally bad coming back, until they reached England, when the weather improved, to add to their troubles one of the petrol tanks developed a leak. Nevertheless, Heston was reached at 6.12 p.m., having averaged 124 m.p.h. for the 1,300 miles—thus beating all previous records. Actually, they flew a greater distance, as they had to make several detours owing to the bad weather. Although the Vickers "Vivid"—which by the way is fitted with a type XI A Napier "Lion" of 550 h.p.—is equipped with petrol tanks having a capacity of 265 gals., only 215 gals. of petrol were carried on this trip.

"Graf Zeppelin's" Trip to Palestine

THE German airship *Graf Zeppelin* left Friedrichshafen early on April 9 on its cruise to Cairo and Palestine. There were about 25 passengers on board, including Sqdn. Ldr. Booth, commander of R.100, Col. Gossage, Air Attaché, of the British Embassy at Berlin, and Count von Brendenstein-Zeppelin. The airship passed over Sardinia that evening, and arrived at Cairo on Saturday. Before landing, one of the crew jumped with a parachute in order to superintend landing operations. A large crowd of about 25,000 gave the airship and its commander, Dr. Eckener, an enthusiastic reception. Shortly after, the airship made a cruise over Jerusalem, watched by large crowds in the streets, then returned to Cairo, arriving back at Friedrichshafen on April 20.

The Oehmichen Helicopter

IT is reported from Besançon that a successful experiment was carried out at Valentigney on April 9 with a new form of helicopter invented by M. Oehmichen. M. Oehmichen made an absolutely vertical flight of over 200 ft. with perfect stabilisation, which he followed up with a vertical descent.

19,000 Ft. in an Autogiro

IT is reported from Philadelphia that Miss Amelia Earhart (who flew the Atlantic in June, 1928) attained an altitude of about 19,000 ft. in a 300-h.p. Autogiro, on April 8. This is claimed to be a record for this type of machine.

Short Flying-Boat in Japan

THE special flying-boat which was built for the Japanese Navy by Short Bros. was put through severe trials over Osaka Bay, on April 9, by Mr. Lankester Parker. In addition to a British crew, there were a Japanese pilot and crew also on board. At the conclusion of the trials the flying-boat was handed over.

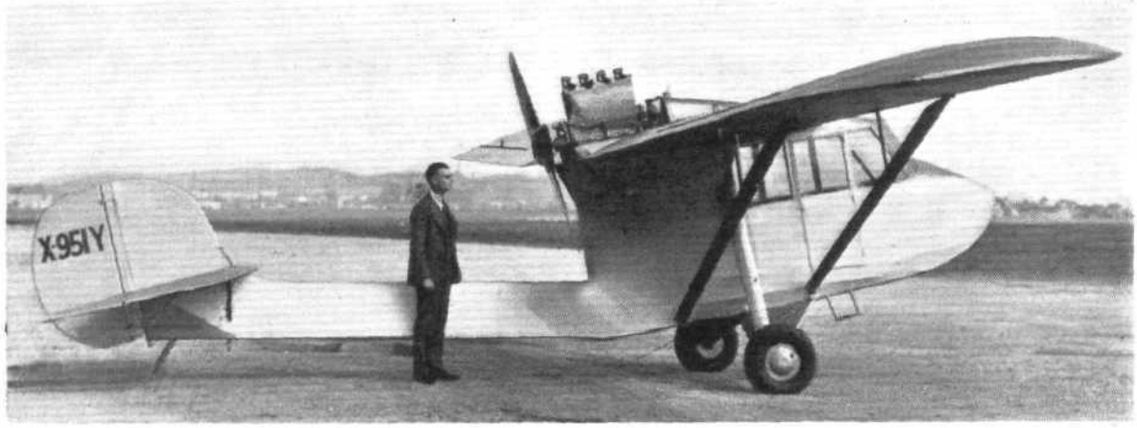
R.A.F. and Kurd Brigands

A KURDISH brigand-chief, named Sheikh Mahmud, who gave an undertaking to the Iraq Government three years ago, has crossed the border from Persia into Iraq with a band and has been attacking isolated Iraqi police posts, and trying to stir up Kurdish tribes in Iraq. The Iraq troops are trying to engage Mahmud, and the R.A.F. is co-operating by spotting bands of the raiders. The bands frequently take refuge in villages, and the R.A.F. have to warn the villagers before taking to bombing. Of course, the brigands are also warned and evacuate the place with the villagers. Consequently, the casualties are negligible, and the damage done by the bombs is to the property of the villagers. Still, these proceedings keep the Kurds on the move and prevent them from establishing themselves anywhere. It seems that the R.A.F. armoured cars, if they could be brought up to the scene of operations, would be of considerable assistance.

Prince Bibesco Starts

ON April 9, Prince Bibesco, President of the Federation Aeronautica Internationale, with three companions, started from Le Bourget, in his Ford 5-AT Pullman monoplane, on his tour of foreign airports, and reached Rome in the evening. They arrived in Athens on April 11 and left for Aleppo next day.

"BRISTOL" AEROPLANES IN LATVIA: Officers and non-commissioned officers of a "Bulldog" Squadron.



AN UNUSUAL DESIGN: Successful tests are stated to have been made at California with this strange-looking craft, designed by Earl E. McClary, of Huntington Park, Los Angeles, who is seen standing beside the machine. It is said to possess remarkable controllability at very low speeds. Except that it has a 75-h.p. engine, particulars of this machine are not yet available.

Tommy Rose to Fly Back

FLIGHT.-LIEUT. TOMMY ROSE, who recently flew from England to the Cape, has announced that he intended to beat the time set up by the Duchess of Bedford on her flight from the Cape to England. Mr. Rose believes that he will be able to complete the trip in four and a half days.

The Prime Minister Flies Home

MR. RAMSAY MACDONALD accomplished the 450 miles journey from Lossiemouth to London on April 13 in 4¼ hours —which is a record for his flights to and from the North— in a Fairey 'plane sent from the Northolt Aerodrome. The Air Ministry gave details of Mr. MacDonald's flight as follows: "Left Lossiemouth, 9.15 a.m.; arrived at Hendon, 1.20 p.m. Flying time for 450 miles journey, 3 hours 10 minutes."

Miss Reynolds' African Flight

MISS DELPHINE REYNOLDS and Flight-Lieut. Pudney who have been carrying out a survey flight to the Cape along the west coast of Africa, in a Blackburn "Bluebird," will probably have to abandon the flight. When taking off in choppy water at Sierra Leone, on April 10, damage was caused to the machine, which will take many weeks to repair.

Mrs. Montague's Flight

MRS. EDWIN MONTAGU, widow of the former Secretary of State for India, who is making a flight to Persia and Soviet Russia, left Constantinople, on April 13, for Aleppo.

Sig. Mussolini's Surprise Flight

ON April 11, Sig. Mussolini, piloted by Gen. Balbo and accompanied by the Minister of Marine, made a surprise aerial visit of inspection of the light cruiser division lying off Gaeta. He flew from Rome, over the fleet, and then returned to Rome.

Two Killed in "Southern Cross Junior"

A PILOT, Mr. Leonard Palmer, and his passenger, Mr. A. James, were killed at Mascot Aerodrome on April 12 when their machine, the *Southern Cross Junior*—on which Kingsford Smith flew to Australia—crashed from 2,000 ft. It is stated that a wing broke in the air.

K.L.M. Service to Australia

IT is announced by the Royal Dutch Air Lines that a special flight with mails is intended to be made from Amsterdam to Australia. The flight will begin on April 30, and, by way of Batavia, Wyndham, Brisbane and Sydney, it is expected that Melbourne will be reached on May 18. The return journey is planned to begin the following day. This will be the first flight to Australia starting from the Continent.

Ford Aerodrome, Ford

THE premises of the Sussex Aero Club at Ford, near Littlehampton, have been bought by the Ford Motor Co., Ltd., for a service aerodrome for Ford aircraft. The Sussex Aero Club is removing its headquarters nearer to Bognor.

CANADA'S GOODWILL AEROPLANES: This D.H. "Puss Moth" recently completed a trans-Canada tour which was undertaken to stimulate interest in aviation. The names of the towns visited are stencilled on the side of the fuselage, some of which are:—Toronto, Ottawa, St. Hubert, London, Camp Borden, Detroit (Mich.), Chicago (Ill.), Madison (Wis.), St. Paul (Minn.), Fargo, Winnipeg, Regina, Moose Jaw, Calgary, Cranbrook (B.C.), Vancouver, Edmonton, Saskatoon, Stratford, Hamilton, Niagara Falls, etc., etc. This picture was taken at Limberlost Lodge, a winter resort near Toronto, Ontario, with some of the visitors who made a trip in the machine.

WIRELESS AND AIRCRAFT

Wireless Communications for Africa. A Chain of New Marconi Stations.
Approved Wireless Equipment for Aircraft

BRITISH enterprise is establishing a comprehensive system of wireless communications in Africa, the Marconi Company having received orders for the erection of a chain of wireless transmitting and receiving stations through the heart of that Continent.

The stations have been ordered by the Administrations of Uganda, Kenya Colony, Tanganyika, Northern Rhodesia, Southern Rhodesia, and the Union of South Africa, and they will be used both for the operation of the new Cape-Cairo air route and, in many cases, for general communication.

The apparatus to be installed, all of which is being manufactured at the Marconi Works at Chelmsford, is of the latest design for transmission and reception on medium and short wavelengths.

By the aid of these stations, linking up all the aerodromes and enabling aircraft in flight to keep in touch with the ground throughout the journey—the aircraft also being equipped with Marconi apparatus—the trans-African aviation service will constitute the most highly-organised long-distance air route in the world, and at the same time internal and external communications will be greatly facilitated throughout the Continent.

The sites for the stations have now been decided; they are to be in the proximity of

Uganda:—Kampala;
Kenya Colony:—Nairobi;
Tanganyika:—Moshi, Dodoma, and M'Beya;
Northern Rhodesia:—M'Pika and Broken Hill;
Southern Rhodesia:—Salisbury and Bulawayo;
Union of South Africa:—Germiston, Victoria West, and Cape Town.

The wavelengths used for wireless communication between the aircraft and these stations will be 900 metres, and inter-aerodrome communication will take place on short waves.

For general communications special wavelengths have been allotted to the stations at M'Pika, Broken Hill, Bulawayo, Salisbury, Germiston, and Victoria West, which will be used for this purpose.

Short-Wave Transmitters

Five types of Marconi short-wave transmitters—types S. 3A, S. 3B, T.N. 7, T.N. 7A, and S. 100B—are to be installed in the wireless stations, according to the class of service and the wavelength required in each instance.

The type S. 3A has been recently developed to cover efficiently a very wide range of frequencies, extending from 18,750 to 4,000 kilocycles (16 to 75 m.). This transmitter is normally rated at 1-kilowatt, this being the output of the high-tension direct-current generator used for supplying power to the anodes of the magnifying valves. It incorporates quartz crystal and master oscillator control to maintain the rated frequency within a very narrow limit.

A modification of this transmitter, the Marconi type S. 3B, covers from 1,500 to 3,000 kilocycles (20 to 100 m.)

Other stations are to be equipped with the Marconi type T.N. 7 short-wave transmitter, which is similar to the type S. 3A and S. 3B transmitters, except that the quartz crystal is replaced by an independent drive circuit.

The T.N. 7 transmitter is also manufactured in two models, one operating over a frequency of 18,750 to 4,000 kilocycles (16 to 75 m.), and the other from 1,500 to 2,222 kilocycles (20 to 185 m.).

A simple and easily-operated short-wave transmitter, type S. 100b, is fitted in some of the stations. It covers a frequency range of 1,000 to 5,000 kilocycles (30 to 60 m.), and under normal conditions very long distances can be covered.

Medium Wave Apparatus

For operation on medium wavelengths, the African stations are to be equipped with the Marconi transmitters Types T.A. 4a and M.C. 6. The type T.A. 4a transmitter has a power input of 2·2 kw. and is suitable for transmission over the wave range of 400 to 1,550 m.

The type M.C. 6 equipment, which was originally developed as a powerful marine transmitter for use on large ships, is a transmitter covering the wave-bands of 600 to 800 m. and 1,900 to 2,500 m. It has a power input of 2 kw., but if working over shorter ranges this can be reduced to about one-tenth, if required.

General Purpose Receivers

The receivers employed are principally the Marconi commercial receivers, types R.G. 27 and R.G. 28. Both these receivers incorporate every modern development to secure a high degree of selectivity, stability of working over the full wave range, and ease of adjustment. The R.G. 27 covers a frequency range of 2,000 to 100 kilocycles (150 to 3,000 m.), and the R.G. 28 covers the short-wave range from 100 to 200 m.

The stations at Germiston and Victoria West are equipped with the Marconi directional receiver, Type R.G. 14, as fitted at the London Air Port, Croydon. This type of wireless direction finder, operating on the Marconi-Bellini-Tosi system, has proved its value in many important aerodrome stations in various parts of the world, including the London Air Port at Croydon.

Details of Stations

The equipment installed in the new stations is as follows:—

Kampala: T.A. 4a and S. 3b transmitters; R.G. 27 and R.G. 28 receivers.
Nairobi: T.A. 4a and T.N. 7a transmitters; R.G. 27 and R.G. 28 receivers.
Moshi: S. 100b transmitter; R.G. 28 receiver.
Dodoma: S. 100b transmitter; R.G. 28 receiver.
M'Beya: T.A. 4a and T.N. 7 transmitters; R.G 27 and R.G. 28 receivers.
M'Pika: S. 100 transmitter; R.G. 28 receiver.
Broken Hill: T.A. 4a and S. 3b transmitters; R.G. 27 and R.G. 28 receivers.
Bulawayo: T.A. 4a and S. 3a transmitters; R.G. 27 and R.G. 28 receivers.
Salisbury: S. 3a transmitter; R.G. 28 receiver.
Germiston: M.C. 6 and T.N. 7 transmitters; R.G. 14 direction-finder receiver.
Victoria West: M.C. 6 transmitter; R.G. 14 direction-finder receiver.

Approved Wireless Equipment for Aircraft

Many hundreds of aero-generator windmills developed by the Marconi Company, in conjunction with Messrs. Haslam and Newton, of Derby, utilising variable-pitched blades operated by means of centrifugal weights, are in use in all parts of the world. The British Air Ministry has now notified the Marconi Company that the Marconi-Newton constant-speed windmills, Type 110, 140, 160 and 180, are approved for use on civil aircraft registered in Great Britain.

Owing to the differing air speeds and other factors involved, the installation of a windmill of any of these types in any particular aircraft registered in Great Britain will be subject to examination in order to ensure its safety on that machine. The Type 110 windmill has an output up to 100 watts, Type 140 up to 180 watts, Type 160 up to 250 watts, and Type 180 up to 500 watts.

These new models, as approved by the Air Ministry, include important improvements, greater strength and efficiency being obtained by the use of solid blades and a new system of governing, and the general construction being lightened in weight. At the same time head-resistance has been reduced.

Other Marconi wireless apparatus approved by the Air Ministry for use on civil aircraft registered in Great Britain include the AD.6.h. and A.D.6.m. "all-purpose" 150-watt aircraft telegraph-telephone equipments; A.D.8 long-range aircraft telegraph-telephone equipment; A.D.16 aircraft direction finder, Bellini-Tosi system; A.D.18a. 350-watt telegraph-telephone transmitter and receiver, the former having an independent "drive" system for maintaining at a constant value the frequency of the radiated wave; A.D.19 150-watt short-wave telegraph-telephone transmitter with independent drive, wave range 40-60 m.; A.D. 20 short-wave receiver, wave range 40-60 m.; and A.D.20a short-wave receiver, wave range 80-180 m.

AIR MINISTRY NOTICES

IT will be seen from the following notice that the Air Ministry Notices to Airmen have been sub-divided in a new manner, and are to be distributed in a different way than hitherto. In view of this distribution and of the increasing size of these notices, as well as those to Ground Engineers and to the increasing pressure on our space, we shall in future not publish these notices in full, but will summarise each notice as it appears. We feel that by so doing we shall be enabled to keep up to date with these, as issued, and readers will, from these summaries, immediately be able to see which notices interest them particularly, and if desired make application for copies to the Air Ministry.

Notices to Airmen : System of Sub-division and Distribution

IT is notified that :—

(1) Commencing with the issue of this notice, Notices to Airmen will be divided into four separate series, each of which will have its independent distribution list. Present recipients of the notices should therefore read carefully the information given below concerning the future classification of the notices, and, if interested in any of the series B—D, should note the special steps which it will be necessary to take in order to obtain copies of such notices.

(2) The classes of information covered by the various series will be as follow :—

Series A.—Information which is of general interest and which is not covered by Series B—D, *e.g.* :—

(i) Certain regulations of a temporary or experimental nature which are not for the time being covered by the Air Navigation Directions, etc., such as those relating to flight on the Croydon-Lympne air route in conditions of bad visibility; flights across the Strait of Dover—procedure for reporting; altitude for flight across the Strait of Dover.
(ii) Warnings *re* R.A.F. night flying without navigation lights.
(iii) Warnings *re* air races and displays.
(iv) Notifications of issue of new regulations.
(v) Warnings *re* contravention of existing regulations.
(vi) Notifications of publication of civil air maps.

Notices such as those coming within classes (i)—(iii) above will be printed on pink paper with the word " SPECIAL " in the top right-hand corner; other notices in this series will be printed on white paper. It will be observed that this sub-division of Series A corresponds, roughly, with the previous division of Notices to Airmen into " Navigational Warnings " and " General Notices "; but it should be noted that all notices issued under Series A will be numbered consecutively, irrespective of their subject.

Series B.—Information concerning countries not coming within the scope of one or other of the volumes of the *Air Pilot*. Generally speaking, the scope of this series will be confined for the present to *important* information affecting flight along the extra-European sections of long-distance routes, such as England-Africa and England-India, which are most frequently used by British pilots. Series B notices will be printed on buff paper.

Series C.—Information of a temporary or specially urgent character which amplifies or amends the information contained in the *Air Pilot*, Vol. I (Great Britain and Ireland). To be printed on blue paper with one diagonal bar across the top right-hand corner.

Series D.—Information of a temporary or specially urgent character which amplifies or amends the information contained in the *Air Pilot*, Vol. II (Europe, excluding Great Britain and Ireland).* To be printed on blue paper with two diagonal bars across the top right-hand corner.

(3) The distribution of the various series will be carried out as follows :—

Series A.—All persons at present in receipt of Notices to Airmen will automatically be placed on the distribution list for Series A notices, and this series will continue to be given a wide distribution on the basis on which Notices to Airmen have been distributed in the past. In the event of any individual pilot not having easy access to Series A notices distributed through the normal channels, copies will be supplied direct to him upon application being made to the Secretary, Air Ministry (C.A. 3), Gwydyr House, Whitehall, London, S.W.1.

Series B.—Copies of all notices in this series will be supplied, as issued, to persons such as licencees of public-use aerodromes and to organisations such as light aeroplane clubs and air transport and air survey companies, if application is made to the Air Ministry at the address given above. There will be no general distribution of these notices to individual pilots or aircraft owners, but persons desiring information concerning a particular country or route can obtain copies of the relative notices, if any, upon application to the Secretary, Air Ministry (C.A. 4), Gwydyr House, Whitehall, London, or from one of the under-mentioned sources :—

Automobile Association, Fanum House, New Coventry Street, W.1.
Royal Aero Club of the United Kingdom, 3, Clifford Street, W.1.
National Flying Services, Ltd., London Air Park, Hanworth Park, Middlesex.

Series C. & D.—Copies of these Notices, in addition to copies of Series A Notices, will be supplied to subscribers to the Supplements to Volumes I and II of *The Air Pilot*, respectively, provided that the special Request Forms, which will appear in the Supplements from time to time, are completed and returned to the Secretary, Air Ministry, (C.A. 3.).

(4) All past Notices to Airmen should now be considered as cancelled or discontinued with the exception of the following Notices, which should be retained for reference pending their cancellation or replacement by a new Notice in the near future :—

General Notices.—1930 : Nos. 1 (Reprints Nos. 6-10, 12-18 and 26), 7 and 8. 1931: No. 4.

Navigational Warnings.—1931 : Nos. 3, 4, 5 and 6.

Certain other past Notices not listed above are being re-issued immediately, with any necessary amendments, in the appropriate series.

Air Ministry, April 1, 1931.

(*Series A. No. 1 of* 1931.)

* To be published shortly.

Forms of Application for Civil Pilots' Licences

(1) The form of application for civil pilots' licences (C.A. Form 2A) has recently been revised and reprinted as two separate forms, viz. :—

C.A. Form 2. Application for Pilot's Licence—Class B (Public Transport or Aerial Work).

C.A. Form 2A. Application for Pilot's Licence—Class A (Private flying).

(2) Flying clubs, schools or other organisations which may be in possession of small supplies of the obsolete C.A. Form 2A are requested to destroy them and to arrange for their replacement, as necessary, by supplies of the revised forms. Applications which have been originated on the form hitherto in use will be carried through on that form, but it is essential that all applications made after the receipt of this Notice should be preferred on the new pattern forms.

(3) Small supplies of the revised forms may be obtained on application to the Secretary (C.A.2) Air Ministry, London, W.C.2.

(*Series A. No. 2 of* 1931.)

Air Navigation Regulations

(1) The attention of all pilots and other persons engaged in air traffic over Great Brtiain and Northern Ireland is drawn to the necessity of keeping themselves familiar with the air navigation regulations, etc., already in force and of acquainting themselves with the amendments and additions to these regulations as issued.

(1) A list of the air navigation regulaions, etc., at present in force in Great Britain and Northern Ireland, can be purchased from H.M. Stationery Office, Adastral House, Kingsway, W.C.2, or through any bookseller.

(3) New regulations, adding to, amplifying or amending the existing regulations, are issued from time to time. Brief particulars of these are published in Notices to Airmen.

(*Series A. No. 3 of* 1931.)

NOTICES TO AIRMEN, SERIES A

No. 4 of 1931
Flights Across the Irish Sea. Procedure for Reporting

This notice gives the procedure to be employed for reporting the passage of aircraft across the Irish Sea from Holyhead to Baldonnell aerodrome, also the similar procedure which may be carried out in the reverse direction for aircraft returning from the Irish Free State.

No. 5 of 1931
Flight on Croydon-Lympne Air Route in Conditions of Bad Visibility

This notice gives the routes to be followed and regulations for obviating danger of collision between civil aircraft proceeding to or leaving Croydon aerodrome and R.A.F. aircraft in conditions of bad visibility. Alternative routes are given for use under such conditions, the following of which is necessitated when a " Fog Notice " is issued by the Chief Aerodrome Officer at Croydon aerodrome.

No. 6 of 1931
Flights Across the Straits of Dover. Arrangements for Reporting and Search

This gives the procedure to be carried out by aircraft equipped with radio and also that which those not so equipped are advised to follow. Further information is given as to the circumstances in which search and rescue operations to aircraft in distress in the Straits of Dover are instituted.

No. 7 of 1931
Emergency Communication between Aircraft and Ships

This gives the method to be followed when aircraft wish to communicate with ships for some urgent reason, such as calling their attention to another aircraft in distress.

No. 8 of 1931
Altitude for Flying Across the Straits of Dover

Gives the height at which aircraft should be flown across the Straits of Dover. A table gives the route and the suggested minimum safe flying height for various-engined aircraft.

No. 10 of 1931
Cranbrook Air Light, Altered Period

This notice announces the increase of the period of the Cranbrook Light from 7 sec. to 10 sec. The alteration is only experimental and is designed to increase the visibility of the light by prolonging the duration of each of the three flashes.

NOTICES TO GROUND ENGINEERS

No. 24 of 1931
Modification of Sutton Harness

Owing to a fatal accident being attributed to the use of the two-pronged safety pin, a three-pronged type is in future to be fitted on this harness.

No. 25 of 1931
D.H. 60 X G. & M. " Moth " Aircraft. Main Plane Locking Bolts

Modification to the bottom front spar locking bolt of " Moth " aircraft. The tapered end is shortened owing to it having been found that the bolt has exhibited a tendency to ride forward on the taper under load.

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Air Mail to Australia.

REPLYING to Lieut.-Com. Kenworthy, Mr. Montague, on April 2, said that arrangements had been made between the Air Ministry and Imperial Airways, Limited, for the operation of two experimental flights, in each direction, between London and Australia, which in effect would be an extension of the existing London-Karachi and Karachi-Delhi services. The first through flight would start from London on April 4 and the second on April 25. The route after Delhi would be *via* Allahabad-Calcutta-Akyab-Rangoon-Victoria Point-Singapore-Batavia-Sourabaya-Koepang-Port Darwin, where the first mail was due on April 19 and the second on May 10. Imperial Airways, Limited, were endeavouring to make arrangements with an Australian company to provide an onward connection to towns in Queensland and New South Wales. Any letter prepaid at the inclusive rate of 8d. for the first half-ounce and 7d. for each additional half-ounce would be accepted for Calcutta and Rangoon. The question of the establishment of a regular air mail service would depend on whether financial assistance was forthcoming from the Governments concerned. The Treasury have agreed, to a subsidy for these two experimental flights, on the understanding that Australia will be told that that is all we can spend on the service until they are in a position to contribute.

Netheravon Transferred to No. 22 Group

NETHERAVON was transferred from No. 23 Group to No. 22 Group, on March 1, 1931.

Andover Staff College

THE Air Ministry announce that the qualifying examination for the eleventh course at the R.A.F. Staff College, Andover, will be held from January 26 to 29, 1932, inclusive, only the voluntary papers being set on the last day. Lists of names of officers recommended are to be forwarded so as to reach the Ministry by November 1, 1931.

THE ROYAL AIR FORCE

London Gazette, April 7, 1931.

General Duties Branch

Pilot Officer on probation I. C. Bird, R.A.F.O., is granted a permanent comm. as Pilot Officer with effect from March 30, and with seny. of March 30, 1930. The follg. Pilot Officers are promoted to rank of Flying Officer :—I. B. Newbigging, K. W. Niblett (Jan. 27) ; D. Barclay, M. E. Pickford, G. E. B. Stoney, G. R. Stroud (Feb. 15) ; A. C. Richardson (Feb. 28) ; H. G. Adams, S. H. Bell, L. E. Chiswell, G. B. S. Coleman, J. L. M. Davys, S. W. H. Egan, C. J. Hansford, N. C. Hyde, E. E. Noddings, I. N. Roome, K. N. Savers, S. D. Slocum, C. A. Washer (March 13).

Flight Lt. R. P. P. Pope, D.F.C., is transferred to Reserve. Class A (March 22).

Chaplains Branch

The Rev. W. R. Marsh, B.D., is granted a permanent comm. (April 8).

RESERVE OF AIR FORCE OFFICERS

General Duties Branch

The follg. are granted comms. in Class A.A. (ii) as Pilots Officers on probation :—C. H. Lewis, H. F. McCullagh (March 23) ; W. R. Rumbold, G. D. Watson (March 24). R. C. Reynell is granted a comm. in Class A.A. (ii) as Pilot Officer (March 24) ; Pilot Officer on probation I. C. Bird relinquishes his comm. on appointment to a permanent comm. in R.A.F. (March 30) ; Flying Officer E. C. N. Jeffries relinquishes his comm. on appointment to Royal Canadian Air Force (Feb. 20).

The follg. relinquish their comms. on completion of service :—Flight Lt. R. E. H. Daniel (Oct. 28, 1930) ; Flying Officer R. H. S. Mealing (Feb. 16). Flight Lt. W. Jones relinquishes his comm. on completion of service and is permitted to retain his rank (Nov. 11, 1930).

AUXILIARY AIR FORCE

General Duties Branch

No. 605 (County of Warwick) (Bomber) Squadron.

The follg. Pilot Officers are promoted to rank of Flying Officer :—J. F. Gummow (Dec. 13, 1930) ; J. V. Wood (Jan. 18).

Accountant Branch

No. 605 (County of Warwick) (Bomber) Squadron.

Pilot Officer F. P. Williams is promoted to rank of Flying Officer (Oct. 1, 1930).

ROYAL AIR FORCE INTELLIGENCE

Appointments.—The following appointments in the Royal Air Force are notified :—

General Duties Branch

Air Vice-Marshal F. V. Holt, C.M.G., D.S.O., to H.Q., Fighting Area, Uxbridge, on appointment as Air Officer Commanding ; 1.4.31.

Air Commodre The Hon. J. D. Boyle, C.B.E., D.S.O., to H.Q., Air Defence of Gt. Britain, for duty as Chief Air Staff Officer ; 1.4.31.

Group Captains : H. M. Cave-Browne-Cave, D.S.O., D.F.C., to Air Ministry (D.T.D.), on appointment as Director of Tech. Development ; 1.4.31. J. R. W. Smyth-Pigott, D.S.O., to H.Q., Fighting Area, Uxbridge, for duty as Chief Staff Officer ; 1.4.31. T. G. Hetherington, C.B.E., to Special Duty List, on appointment as Air Attaché, Rome ; 21.3.31. A. Corbett-Wilson, Station H.Q., Boscombe Down, to command ; 20.3.31.

Wing Commander H. Gordon-Dean, A.F.C., No. 3 (Indian) Wing H.Q., Quetta, to command ; 11.3.31.

Squadron Leaders : M. L. Taylor, A.F.C., to No. 40 Sqdn., Upper Heyford ; 1.4.31. S. T. Freeman, M.B.E., to Home Aircraft Depot, Henlow ; 2.4.31.

Flight Lieutenants : A. W. Franklyn, M.C., to Practice Camp, North Coates Fitties ; 10.3.31. R. J. H. Holland, J. E. L. Drabble, both to No. 40 Sqdn., Upper Heyford ; 1.4.31. G. L. Gandy, to No. 503 Sqdn., Lincoln ; 1.4.31. B. H. C. Russell, to No. 111 Sqdn., Hornchurch ; 6.4.31. T. J. Desmond, to R.A.F. Depot, Aboukir ; 27.3.31.

Flying Officers : F. P. Donovan, to Station H.Q., Boscombe Down ; 1.4.31. H. E. Sales, to No. 8 Sqdn., Khormaksar, Aden ; 27.3.31. W. S. C. Adams, to Aircraft Depot, Hinaidi, Iraq ; 27.3.31. H. W. Duffey, to Aircraft Depot, Karachi, India ; 12.3.31.

Pilot Officers : D. A. Cameron, to No. 100 Sqdn., Donibristle ; 27.3.31. J. A. Andrews, J. L. Armstrong, M. D. C. Biggie, H. Bottomley, A. R. Bramford, R. V. Bucknall, J. W. Burgess, C. N. Carpenter, W. G. A. Coulson, F. R. Dix, S. G. Graham, A. C. Griffiths, H. V. Horner, W. L. Houlbrook, F. W. A. Hunnard, T. G. Lovell-Gregg, R. C. D. Makins, C. H. Mallinson, C. M. H. Outram, F. A. Proctor, J. B. Sims, S. J. C. Stephens, R. J. Twamley, H. McC. White, and L. J. H. Wilson, to No. 5 Flying Training Sch., Sealand ; 28.3.31. G. R. A. Elsmie, to No. 601 Sqdn., Hendon ; 6.4.31. I. C. Bird, to No. 5 Flying Training Sch., Sealand, on appointment to a permanent commn. ; 30.3.31.

Accountant Branch

Flying Officers : B. Chadwell, to H.Q., Aden Command ; 27.3.31. M. L. Jones, to Station H.Q., Hinaidi, Iraq ; 27.3.31.

Medical Branch

Group Captain W. Tyrrell, D.S.O., M.C., to H.Q., Iraq Command, Hinaidi, for duty as Principal Medical Officer ; 27.3.31.

Squadron Leaders H. B. Troup, J. M. Maxwell (Quartermaster), both to Palestine General Hospital Sarafand, Transjordan ; 27.3.31.

Dental Branch

Flight Lieutenant W. D. Guyler, to R.A.F. Hospital, Aden ; 27.3.31.

NAVAL APPOINTMENTS

The following appointments have been made by the Admiralty :—

Lieuts. (F/O., R.A.F.).—W. S. Lea, to *Glorious* (March 28) ; and C. R. V. Pugh, to *Courageous* (April 14). G. L. Brinton, to *Pembroke*, for Marine Aircraft Experimental Establishment, Felixstowe (April 7) ; H. C. Toppin, to *Emerald* (April 15) ; and J. A. L. Drummond, to *Courageous*.

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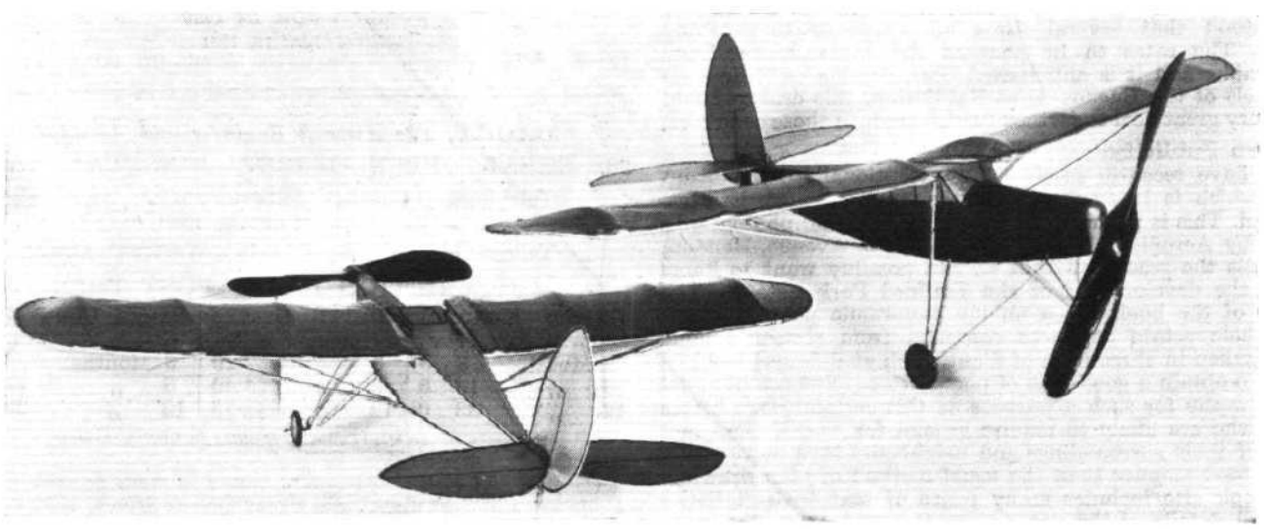
Forthcoming Model Competitions

The Model Aircraft Club (T.M.A.C.) announce the following dates for indoor flying meetings, to be held at the Royal Horticultural Hall, Westminster, from 7 to 9 p.m., Friday, April 17, and on Wednesdays, April 29, May 6, May 20 and May 27.

The Aircraft Club, Harrogate, Model Section, will be holding a flying meeting in Harrogate, on Saturday, May 2—or the following Saturday if wet. There will be three classes :—Class 1.—For models flown by entrants under 16. Class 2.—For fuselage machines built under the S.M.A.E. formula, *i.e.*, cross-sectional area of fuselage = (overall length of body ÷ 10)^2. Class 3.—Open to all types. Ten seconds will be credited to machines rising from the ground. The prizes will consist of model aeroplane materials or orders on firms for materials ; and diplomas. There will be special prizes for home constructed models. Entrance fee, 1*s.*, 6*d.* of which will be returned to starters.



A FLYING MODEL "PUSS MOTH": Two views of Mr. Debenham's "Puss Moth," drawings of which were published in "Flight" for December 12 last. This model, of 22 in. span, puts up excellent flights in the neighbourhood of 20 secs. duration. (Flight *Photos.*)

THE INDUSTRY

Aids in the Australian Flight

PRAISE in plenty has been given to Mr. C. W. A. Scott for his record-breaking flight to Australia, but while we remember the man we must not forget the machine and the various other items connected with the mechanical side. Honourable mention, therefore, to the "Aids" given below. Replying to a cablegram of congratulation sent by the directors and staff of the De Havilland Aircraft Co., Ltd., Mr. Scott replied as follows:—"Moth and Gipsy fully justified expectations. Engine running as sweetly on arrival as when it left England. Many thanks. Scott."

Coupled with the name of "Gipsy" we also have "B.T.-H." magnetos; "K.L.G." plugs; Hoffmann ball bearings (Skefko bearings were used in the machine itself); Kayser-Ellison valves; and Wellworthy piston rings. Oh, and coupled *to* the engine, Airscrew Co.'s propeller. "Shell" spirit and Wakefield "Castrol" helped to keep things moving satisfactorily, as did Dunlop wheels and tyres when on the ground.

And in the Cape Flight

APROPOS "aids" in a big flight, the following should be mentioned in connection with Lieut.-Comdr. Glen Kidston's record journey to the Cape in a Lockheed "Vega." Lieut.-Comdr. Kidston has stated that the Kelvin, Bottomley and Baird compasses (type K.B.B.4 were used) gave utmost satisfaction, and were largely responsible for the success of the flight. He also cabled to the Marconi Co. as follows:—"Should like to thank Marconi Company for the services of Mr. Vallette, who greatly contributed to the successful flight by his skilful operation of the wireless apparatus. Your Marconi receiver (type A.D. 18a) worked admirably and was very valuable." It may be added that "Exide" batteries were employed. Although an American machine, it may be worth noting that Vickers pumps and fuel cocks were used. Finally, the British Russell Parachute Co., Ltd., received a cable stating:—"Russell lobe mail parachutes carried on flight most satisfactory."

A 1931-2 A.A. Handbook

THE new A.A. handbook is, as usual, a mine of information both for those who travel about by motor-car and for those who fly. The Aviation Department and all its benefits are fully described, as well as all the other well-known features. The legal section has been omitted, and this information, revised to cover all changes in motor law incorporated in the new Road Traffic Act, will be issued separately to all members.

A British Trade Enterprise

THE British National Exhibition Ship, Ltd., of Bush House, Aldwych, are fitting out s.s. *Leicestershire*, renamed s.s. *British Exhibitor*, a 14,960-ton liner of the Bibby Steamship Co., as a floating exhibition of British goods. It is expected that she will leave sometime in July, and the cruise will cover all important ports in South America and the West Indies, continue up to San Francisco, Seattle and Vancouver, before returning home. Accommodation is available for aircraft engines, instruments and accessory makers, and it is understood that several firms are contemplating taking space. The rates to be charged for space appear very reasonable, and it is anticipated that, coming as it does on the heels of the Buenos Aires Exhibition, this cruise should do a very great deal to further British trade in those countries.

Modern Publicity

WE have recently received an exceptionally well got-up book which is being issued by the Trafford Park Estates, Limited. This is profusely illustrated with aerial photographs taken by Aerofilms, Limited, of Colindale Avenue, Hendon, and tells the reader all that he can possibly want to know about the development of the Trafford Park Estate. The centre of the book has a unique panoramic photograph of the whole estate and was compiled from sixteen oblique views taken in three lines of flight, each at different heights, so as to obtain a good idea of perspective. The use of aerial photography for such a purpose as this certainly lays before those who are likely to require ground for works, the exact state of their surroundings and neighbours in a more easily understood manner than the usual method of plan drawing. The book also includes many pages of text with statistics and full details of the various services and amenities to be found both on the estate and in the neighbourhood.

The Redwing Aircraft Co., Ltd.

THE Robinson Aircraft Co., Ltd., of Stafford Road, Croydon, will henceforth be known under the above title.

PUBLICATIONS RECEIVED

Technical Notes of the American National Advisory Committee for Aeronautics: No. 348. *Alterations and Tests of the "Farnboro" Engine Indicator.* By J. H. Collins, Jr., Sept., 1930. *No.* 349. *An Investigation of Airplane Landing Speeds.* By K. F. Ridley. Sept., 1930. *No.* 351. *An Accurate Method of Measuring the Moments of Inertia of Airplanes.* By M. P. Miller. Oct., 1930. *No.* 352. *Effect of Orifice Length-Diameter Ratio on Spray Characteristics.* By A. G. Gelalles. Oct., 1930. *No.* 353. *Analytical Determination of the Load on a Trailing Edge Flap.* By R. M. Pinkerton. Oct., 1930. *No.* 354. *An Investigation of the Phenomenon of Separation in the Air Flow Around Simple Quadric Cylinders.* By J. F. Parsons and J. A. Wallen. Nov., 1930. *No.* 355. *Effect of the Angular Position of the Section of a Ring Cowling on the High Speed of an XF7C–1 Airplane.* By M. N. Gough. Nov., 1930. *No.* 356. *Some Characteristics of Fuel Sprays from Open Nozzles.* By A. M. Rothrock and D. W. Lee. Nov., 1930. *No.* 357. *Bending Tests of Metal Monocoque Fuselage Construction.* By R. W. Mossman and R. G. Robinson. Nov., 1930. *No.* 358. *Experiments with a Model Water Tunnel.* By E. N. Jacobs and I. H. Abbott. Dec., 1930. National Advisory Committee for Aeronautics, Washington, D.C., U.S.A.

Catalogues

The "Robur" Parachute. Carl H. Lundholm, Stockholm 16, Sweden.

Air Service Training, Ltd. Preliminary Prospectus. Air Service Training, Ltd., Hamble, Southampton.

Woodworking Machinery. By Müller and Co., Brugg, Switzerland. T. C. Jones and Co., Ltd., 93–95, Wood Lane, Shepherd's Bush, London, W.12.

Contractors' Tools and Equipment. T. C. Jones and Co., Ltd. 93–95, Wood Lane, Shepherd's Bush, London, W.12.

Tycos Instruments for Aviation. Short and Mason, Ltd., "Aneroid Works," Walthamstow, London, E.17.

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THE HOUSEHOLD BRIGADE FLYING CLUB, LTD.—A company limited by guarantee without share capital, with 500 members, each liable for 10*s.* in the event of winding up. The objects are to acquire all or any of the assets and liabilities of the unincorporated Household Brigade Flying Club, to promote aviation, to provide flying facilities and instruction, etc. The management is vested in a committee, the first members of which are:—Col. R. V. Pollok, C.B.E., D.S.O., Irish Guards, 10, Reeves Mews, South Audley Street, W.1. Capt. J. C. Hargreaves, Grenadier Guards, address not stated. Capt. J. C. Haydon, Irish Guards, 2, Burton Court, S.W.3. Capt. A. T. G. Rhodes, M.V.O., address not stated. Lieut. A. V. C. Douglas, Scots Guards, address not stated. Lieut. R. L. Preston, Coldstream Guards, Guards Club, Brook Street, W. Lieut. J. R. Mathew, Irish Guards, address not stated. Solicitors: Goulty and Goodfellow, Manchester.

AERONAUTICAL PATENT SPECIFICATIONS

Abbreviations: Cyl. = cylinder; i.c. = internal combustion; m. = motors. The numbers in brackets are those under which the Specification will be printed and abridged, etc.)

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16,693. L. MELLERSH-JACKSON (Aktiebolaget Bofors). Apparatus for firing at moving aircraft. (344,903).

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10,156. Y. L. J. POTTIER. Windscreens for aircraft, etc. (345,507.)

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